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Address

THE WORK OF THE JOINT COMMITTEE ON STATE AND NATIONAL LEGISLATION.

BY JAMES S. STONE, M.D., BOSTON.

FOR two years the medical profession has been represented in legislative matters by a joint committee of the Massachusetts' Medical Society and Massachusetts Homeopathic Medical Society, of which the President of the Massachusetts Medical Society is chairman.

I shall review briefly the questions which come before this committee because a statement of them will enable us to ask, and we hope to secure, the aid of each member here present. Many matters are brought before the Legislature each year by the State Department of Public Health. These deal with such topics as the purity of foods and beverages, the control of narcotics and poisons, as well as with venereal diseases. The support of the Department of matters of minor and more or less technical importance has usually been sufficient to ensure their passage. The Joint Committee has stood ready to assist, if possible, in the passage of any measure, but usually there has been no occasion for assistance.

* Address before the joint meetings of the Western Districts, October 5, 1921.

VACCINATION.

Vaccination is before the Legislature every year. The medical societies have favored a bill providing that compulsory vaccination be applied to the private as well as to the public schools, and that certificates of physical unfitness for vaccination be granted only after examination of the child, and be good for a year only. Lately the Supreme Court has decided that the local authorities may set a limit to the time for which a certificate is valid.

The Medical Liberty League wishes to abolish compulsory vaccination entirely. The Legislature has not enacted either measure, but the votes indicate that the attitude of the Legislature changes from year to year. The Medical Liberty League brings forward each year its regular objections to medical progress. Unfortunately their sincerity is beyond question; their zeal is fanatical; their intellectual honesty seems very defective.

The Joint Committee, the health authorities, and other public spirited citizens can merely present the historic facts regarding vaccination, and appeal to the reason and commonsense of the legislators. The natural tendency of the latter is to feel that no emergency exists, and to do nothing. The only way in which legislation can be enacted to make our vaccination laws adequate is by convincing the legislators that history proves that sooner or later, in any unvaccinated community, that there will come a devastating epi-

demic. It is only necessary that the spark be applied to the tinder.

It must be clearly recognized that the work of the opponents of vaccination is unceasing. It resembles a popular laxative in certain respects. Circulars from their headquarters, advertisements in the press, and public meetings are among their activities.

VIVISECTION.

Last winter the opponents of what is called vivisection became active again, their bill taking the form of a prohibition of experimentation on dogs. A reference to the article by Ernest Harold Baynes in the *Woman's Home Companion* for July, 1921, is sufficient discussion of this matter. It is one of the best answers to those opposing animal experimentation which has ever been presented.

PHYSICAL EDUCATION.

The so-called physical education and school nurse bills which have been favored for a number of years have been enacted. They provide for the physical training of school children and for school nurses in all towns. A word of warning may not be amiss. The profession ought to be careful that through excessive zeal the administration of these measures is carried out with common sense, and that the benefits of a school nurse are not necessarily to be measured by the number of tonsillectomies which she may bring about.

REGISTRATION OF NURSES.

During the past ten years the problem of supplying the demand for nurses has become pressing. The vast increase in the fields open to nurses have absorbed a very large number of graduates of our hospitals. Industrial, school, public health, social service, army and navy nursing have all come within a comparatively few years. At the same time the course of training has been lengthened to three years. These factors, together with a universal increase in wages has made the employment of nurses a great burden, if not an impossibility in many families.

Two years ago, Mrs. Coolidge, herself a trained nurse, introduced a bill to provide for the licensing of trained attendants. Dr. Worcester has advocated the preparation of nurses for certain kinds of work, giving the opportunity to go out to practice, and then to return for completion of the training in other lines. A year ago the New England Surgical Society passed a resolution suggesting shortening of the course of training to two years. Within a few weeks, Dr. Charles Mayo has come out with a strong denunciation of trade union methods among nurses.

It is obvious that in some manner or other the need of the family of moderate means for nurses in case of sickness must be supplied. Yet the Massachusetts Medical Society has not interested itself in the problem in any official way, nor have its members individually done more than make sporadic protests against existing conditions. The answer to the problem is not plain, but there is a pretty general feeling that three years is an unnecessarily long course of training for the ordinary routine of nursing, while it may not perhaps be long enough for those who are to take up special lines of advanced work. There is one limit to be set, however. The technical knowledge of the ordinary nurse can be acquired in less than three years, probably in less than two. But the training must be continued until professional standards have become second nature. Otherwise deterioration will follow. That is one objection to attendants. Another is that the plan of licensed attendants and registered nurses establishes two classes, and does not provide a means whereby an attendant may by further study become a nurse.

Here is a problem which demands solution from the trustees of hospitals, the managers of training schools, and the medical profession.

MEDICAL EDUCATION.

Numerous measures for raising the standards of medical education have been proposed. One very important step has been taken. The Board of Registration in Medicine has been granted the power to give practical as well as written examinations. Thus the student of the quiz compend who has no practical training may be eliminated.

The requirement of service as an interne before registration has not yet been adopted.

The requirements of proper grounding in the essential premedical sciences have not yet been adopted. Harvard, Tufts, and Boston University all favor adequate preparation for the study of medicine, but we must remember that the College of Physicians and Surgeons, and the Middlesex Medical College still exist, and that there is a College of Osteopathy. Furthermore, it is the right of every physician in the state to ask whether the training provided in our best medical schools can in any way be modified with advantage. For we must not shut our eyes to the fact that the various cults to which we take exception come in to fill a vacuum left by the medical profession. They arise to supply a demand existing rather than to create a demand.

I have tried to indicate some of the matters which come before the Legislature which concern the medical profession, some of them very directly, others through the interest the profession has in the public health.

It is unfortunate that the profession has not more influence in legislation. It is in no way surprising, however. The Legislature is not packed against us. The members of the Legislature are just as fair, just as reasonable, and just as anxious to do the right thing as the men in the community with whom we all come in daily contact. They do not enact at once whatever legislation we seek.

Looked at in a broad way, why should they do so until they are convinced in their own minds that it is the right thing to do. On vaccination, the matter which to us is most plain, they encounter a group of fanatics, bitterly and sincerely, though as seems to us with an inability to seek or see the truth, opposing all vaccination. They look about the state and realize that the cases of smallpox are very few. They do not realize the dangers which lurk in the gradual growth of a large group of unvaccinated individuals in the community. They do not know the history of past epidemics. To them the arguments cleverly set forth pleading for personal liberty count for more than they do with us.

On matters of medical education, they encounter again the opponents of what is called the medical trust. The osteopaths are believed by many to do a great deal of good. They have called attention to certain conditions more forcibly perhaps than they would have been noted otherwise. The grotesque falsity of most of their teachings and the harm they do is overlooked. When what is good in their teachings has been culled out by the medical profession, osteopathy will pass as have other isms and fads. The public does not realize the restless energy within the medical profession which is constantly reaching out for new methods. They hear plainly the noisy claimant of new discoveries.

Other opponents of better medical education are honestly fearful that the poor boy may be deprived of opportunity. They do not realize how unfair it is to allow the poor boy to enter unequipped on the study of medicine.

Still others look about the state and see the increasing number of towns without physicians, and hesitate to run the risk of making the acquirement of a medical education longer or more expensive. They do not realize that for any physician to be properly equipped, especially for practice in a rural community, his training must be better than is at present required, and that the saving of time and cost must be in the secondary schools.

Such are the conflicting forces which confront the legislature. Without our special training and knowledge, would we do differently? There can only be one answer. Is it not therefore absolutely incumbent on us to diffuse our knowledge of public health matters and on matters of legislation on medical subjects through our respective communities? The Massachusetts Medical Society has not employed lobbyists. I hope they will not. Organized efforts through the state to bring before the individual legislators the facts regarding pending matters is very important. It is important that this machinery be kept in order. There is the auxiliary committee consisting of one or more members in each senatorial district which has done excellent work.

But even the most perfect machinery of this sort will fail utterly in constructive accomplishment unless we go back further still and educate the people of our communities. Of late years public lectures in the various medical schools have helped. But the audience they reach is small and the newspaper reports are usually meagre, and often devoted to a statement regarding some minor side issue seized upon by the reporter as sensational.

In every community there are literary or social clubs, and physicians are always members of these clubs. Professional matters are often brought before the members of such clubs by physicians and are given due consideration.

This meeing in Springfield, the meeting in Boston at the end of the month, and other meetings will bring home to the physicians the problems to be considered.

If each one of us thinks for himself about the problems, talks them over with his friends, gets the viewpoint of the layman and gives the viewpoint of the physician whose sole aim in these matters is the public health, then there need be no fear but that in due time the questions of the present and the future will be settled right.

MATERNITY AID.

The *Maternity Aid* question is the most important today, and I have left it for special discussion at the last.

Several years ago, Miss Spencer, the daughter of a physician, inspired as she has stated, by the hardships which her father often mentioned as a result of childbirth in poor families, introduced in the Legislature a bill for state aid. Her measure did not at first attract much attention but finally was supported by various organizations until its passage by the Legislature seemed imminent.

Decided opposition to the measure developed. Prominent among those who opposed it was the gentleman then chairman of the Committee on Ways and Means, and now Speaker of the House. He pointed out that the bill was purely a poor relief measure, and opposed it on that ground, believing that the state should not undertake this form of financial aid to mothers. As an alternative measure he proposed the so-called Young bill, which provided for all women in the state, regardless of their financial status, free medical advice and in case of need free medical and hospital care.

It proposed that the State Deprtments of Health administer the aid, and the bill was advocated as a health measure.

Both the Spencer and the Young bills were opposed by the medical profession. The physicians feared state medicine. The Joint Committee on Legislation, however, regarded the Young bill as preferable to the Spencer bill if any legislation was to be passed.

Both bills were defeated, and Governor Coolidge was empowered to appoint a special commission to study the entire subject. The Commission of Five was to include the Commissioners of Public Health and of Public Welfare, a woman and a physician. The Governor honored the medical profession by appointing the President of the Massachusetts Medical Society as chairman of the Commission, which presented a unanimous report about a year ago.

The findings of this Commission were that about 39% of between 600 and 800 deaths of mothers were probably preventable, and that about the same proportion of deaths of young infants were also probably preventable. The Commission felt that adequate prenatal care was the most important factor in preventing unnecessary deaths during pregnancy and confinement. Their recommendation as to the method of securing the needed prenatal care was that the state provide free nursing service.

The bill favored by the Commission was opposed by the medical profession as a whole. Governor Cox, last winter, called for most rigid economy. The entire matter was referred to the next session of the Legislature meeting in January, 1922.

During all this time the vital statistics published by the Department of State, showed a steady increase in the death rate in the puerperal state of about 70% between 1901 and 1917. The causes of this increase are not definitely known. Some physicians maintain that there has been no real increase in maternal mortality, but that any apparent increase such as is shown in the statistics, is due to changes and improvements in the classification of deaths. The published statistics also show a great increase in deaths from puerperal septicaemia. The proportion of reported deaths from this cause is tremendously higher in the cities than in the country towns.

Last February, the Council of the Massachusetts Medical Society having in mind the general opposition of the profession to any legislation for maternity aid, and yet feeling that some cognizance must be taken of the findings of the Commission that probably nearly 40% of maternal deaths were preventable, and the great increase in maternal mortality shown in the vital statistics, voted to appoint a committee to investigate any measures for maternity and infant welfare.

This Committee has held many meetings, and in June presented a report containing certain findings and suggestions. The more important recommendations were for better prenatal care, through the education of the public as to its benefits and through the establishment of prenatal clinics in connection with existing hospitals and institutions. Separate obstetric services and obstetric wards were suggested in those hospitals where local conditions made this wise. A hint was also given in the suggestion that the tremendous variation in the number of Caesarean sections performed in different hospitals warranted investigation. The proportion of Caesarean sections to deliveries varies in two cities in a single county, from 0.3% to 18%.

The Committee at the meeting of the Council, at a recent session, outlined a plan for an intensive study of all maternal deaths. This plan was approved.

There is no doubt but that maternity legislation will be considered by the Legislature. The Spencer bill, the Young bill, and the Commission bill, are all referred to the coming session. Without doubt, the vast majority of the profession oppose any legislation. Most of the opposition is on the ground that it is socialistic and leads to state medicine. A certain number of legislators, however, are going to ask whether legislation will be beneficial and will decrease deaths regardless of whether the measures are socialistic.

We have a perfect right to oppose socialism as citizens. We have a perfect right to oppose state medicine as physicians. We have a duty to point out the ways, if there are any, in which maternal mortality and morbidity may be decreased, and in which the lot of the childbearing women may be made easier.

If we can go to the Legislature with that purpose foremost in our hearts, we need have no fear that our opposition to state medicine and to socialism will be ignored.

Many physicians feel that, regardless of whether the Commission is right or wrong in their belief that 39% of maternal deaths are preventable, it was right in the conclusion that better prenatal care is the most pressing need in obstetric practice today. But very many physicians do not agree with the particular method advocated by the Commission of securing better prenatal care. The development of existing hospitals and institutions along progressive lines seems to many infinitely preferable to imposing upon the State Department of Health the duty of supervising free prenatal and obstetric nursing service. If the medical profession, through its district societies, could agree upon and advocate constructive suggestions for progress, our position would be very strong. Mind you, I do not say suggestions for legislation, simply suggestions which we regard as making for medical progress. If it can be

demonstrated that we furnish the highest grade of medical service, we need not fear that socialism and state medicine will come whether individuals, local charitable organizations, the towns and cities, the counties, or the state, give financial relief to the very poor.

I for one, am certain that earnest and free discussion of this matter among the members of the medical profession will set us on the right path of progress, and that along the lines of obstetrics at least, the danger of state medicine will amount to no more than it has in the lines of tuberculosis and mental diseases.

Original Articles.

SOME CRITERIA OF X-RAY DIAGNOSIS.*

BY FREDERICK W. O'BRIEN, A.B., M.D., BOSTON,

Assistant Professor of Roentgenology, Tufts Medical School.

ROENTGEN first observed the phenomenon of x-radiation twenty-five years ago. Like most things that are new and unexplored, x-rays were a fertile field for the charlatan in the early days and are today virgin soil for the snap diagnostician.

There is much to be said for the view held by certain eminent men throughout the country as to the unreliability of roentgen diagnosis. This distrust among members of the medical profession is partly the result, I believe, of the commercial development of a certain type of x-ray apparatus, very efficient in the proper hands, partly the result of a general lack of appreciation of the importance of certain criteria in x-ray diagnosis as demonstrated by jejune interpretation, faulty method of employing x-rays, failure of consultant and roentgenologist to coöperate, and a quite universal misapprehension of the limitations of x-ray in relation to final diagnosis.

It seems a paradox to say that the development of x-ray apparatus as we know it to-day has made for inefficiency when one reflects that the inefficient apparatus of days gone by was made the excuse for poor technical work and interpretation. But it has come about in this way.

Coolidge first described his hot cathode tube in 1911 and since that time has produced many modifications of it, including the self-rectifying radiator type, tubes which allow ready and exact regulation. Then came the evolution of the step-up transformer with auto control permitting exact regulation of voltage and milliamperage, current and pressure, so that we now have in tube and transformers, instruments of relative precision, out of which has been developed a technic for making x-ray negatives by rule of thumb that can be repeated *ad libitum* and learned by anyone, with abandon.

Contemporary with this progress was the perfection of double intensifying screens, photographic aids which materially cut down the time of the exposure of x-ray plates or double-coated films, so that we have had the commercial exploitation of the small transformer, a tremendous gift to mankind and useful beyond words, but mark me, pregnant with danger, not necessarily to life, although this cannot be disregarded, but particularly I had in mind the danger to our diagnostic standards.

This development in apparatus may be compared with that in surgical instruments. The old hand versus the electric trephine, the latter efficient to a degree but manifestly more potent for danger in the hands of the unskilled surgeon. It is my farthest thought to minimize the value of modern x ray apparatus any more than I would the electrically driven trephine, although I declare that neither one or the other can be used with success by following the printed instruction sheet that accompanies it.

The truth is the commercialization of the small x-ray transformer with double intensifying screens has not made for scientific education, but conceit.

As hinted above, the making of good x-ray negatives today is readily learned by formula. It may be done by a layman. In busy clinics, this procedure must prevail, but it should always be done under the direction of a competent physician specializing in roentgenology. My own experience has been that very well trained lay technicians never accomplish what a roentgenologist can, because they lack medical intuition. Their work is routine and not creative. If we are to have technicians, let them remain such, and roentgenology will be the better for it.

Roentgen interpretation in the field of medicine is the translation into the terms of pathology or normalcy of the visibilized shadows of the human body registered by x-rays on a fluorescent screen or suitable substance coated with a photographic emulsion. It is a study of color tones. It first presupposes that one is familiar with the character of shadows as they are cast upon fluorescent screens and upon the photographic plate, the color values being reversed in each case; secondly, that one is familiar with the x-ray appearances of shadows cast by the normal anatomy of the body as well as the anomalous and the pathological.

It would seem then that the lay technician is at once ruled out as one qualified to interpret x-ray shadows. Yet we have the spectacle of recognized hospitals employing laymen for interpretation as well as technical work.

Is a physician, then, better able to interpret roentgen findings than the lay technician? As

* Read before the Haverhill Medical Club, Feb. 3, 1921, and at the Charlestown Medical Society, Feb. 21, 1921.

a generalization, yes. In many instances, no. He has had a medical training and possesses what I have termed medical intuition, but unless he has made a special study of ro ntgenology, his x-ray diagnosis must be of limited value. The roentgenologist alone is the proper person to interpret x-ray findings. He should be a well trained physician specializing in diagnosis by means of the x-rays. His general training in medicine should be liberal and his training in roentgen diagnosis thorough, which connotes a period of earnest, intensive study of something more than three months. Obviously we are not going to have this type of man enter and remain in the specialty of roentgenology if the practice of some of our hospitals is continued of asking highly trained men to take full time positions at less than the wages of a journeyman employed there, nor if the profession in general shall continue to support commercial laboratories which are precisely what their name signifies, their "medical directors," so-called, being part of the plan to capitalize the sick. Their x-ray work, generally speaking is inferior for it follows that a conscientious physician would not lend himself to selling his medical birthright. I mention trade laboratories only to dismiss them with the comment that their diagnoses are in worth only commensurate with the method used to obtain the consultations.

Of all criteria of x-ray diagnosis, the method of employing the rays stands out preëminent. There are two great x-ray diagnostic methods, fluoroscopic and photographic. The distinction between the functions of the fluoroscopic screen image and the x-ray negative has been so often, so fully and so definitely exposed that it seems impertinent to call attention to it again. Yet demonstrable truths that are not recognized or are forgotten need reiteration.

The terms "fluoroscope" and "roentgenoscope" are used to describe apparatus by which an object may be exposed to x-rays and the effect of the radiation on the object visibilized upon a screen, so-called, usually a piece of cardboard coated with a proper fluorescent substance. It is a method of examination which must be employed in a room free from ordinary light. It is a rapid method of examination accomplished with little effort on the part of the operator, and because of this very freedom and ease, a source of error. In studying the image on the fluorescent screen there are several optical factors that must be considered, *viz.*, a screen that is fluorescing, viscera in motion and the accommodating ocular muscles of the examiner; factors which cannot be discarded when one is considering minute pathological changes. It truly is a method where he who runs may read, and surely the error in reading while running is greater than while in repose. The roentgenoscopic method is of value only in the examination of thin or medium sized subjects, for rapid orientation and differential diagnosis of gross changes. It does not give one a personal record for historical data or reference.

The chance for personal error seems greater because of the ease with which the method can be employed, because of the necessity of working rapidly to limit the exposure of patient and operator to the rays, and because of the optical difficulties. There are certain types of cases wherein it should never be used, no matter what the size of the patient or the experience of the examiner. For instance, the direct examination of the gall-bladder region for stones, as we know it today, is distinctly not a fluoroscopic method.

The advantage of plate study is that it gives us a record which can be studied at leisure and correlated with clinical data. It has not the same relation to a patient's stature as has the screen method. It is somewhat more costly, time consuming and a matter of detail.

However, it must be distinctly understood that x-ray diagnosis is a unit. Both the photographic method and roentgenoscope must be used and in many cases, indeed, is essential to correct deduction. I point out particularly the limitations of the roentgenoscopic method for reasons which will appear hereafter. The exclusive and abnormal development of one x-ray method of examination would be as destructive of a rounded final diagnosis as would be the specialized training of an athlete which neglected certain classes of muscles.

Regardless of the method employed or the one employing it, the intelligent coöperation of the consultant is a great desideratum in x-ray diagnosis. Our medical knowledge has become so vast within the past decade that accurate diagnosis is today a group affair. The roentgenologist attempts to demonstrate directly when possible, the pathology. This he may do and yet be unable to recognize its precise nature without interchange of opinion with clinician, surgeon or specialist.

The preparation of the patient bears a very intimate relationship to failure or success in x-ray examinations and it is only by the cooperation of the consultant that this can often be accomplished. For instance, in gall-bladder work it is of the greatest importance that the patient be examined when fasting to rule out food particles and to be free from ingested medicinal metallic salts which cast confusing shadows on x-ray examination. Yet constantly these factors in success are neglected. In the examination of the stomach it is again of the highest importance that the patient report for examination fasting. Gastric carcinoma has been reported more than once because of defects in the gastric silhouette due to food, so that when the roentgenologist asks that patients present themselves fasting he has a reason for it.

For several years past at the medical school, where I have the privilege of teaching, I have made it a practice to ask in the final examination, in some form or other, this question, "Why should the habit of asking for one plate of this or that part be discouraged?"

The consultant requests it under the mistaken notion that it will be a matter of saving to the patient. The installation and overhead of a modern x-ray consultant's office is the largest of any of the specialties, to my knowledge, yet I like to feel that the material used and operating expense should play a minor rôle, while the skill and knowledge necessary to obtain the desired diagnosis should determine the major part of the fee. The important thing to keep in mind is that what we want to know is what is wrong with a patient, and it is far better to ask the roentgenologist to make his charges consistent with the patients' means than to attempt to direct or limit the examination.

One plate of a fracture is very deceiving and may mean a law suit. One plate, say of the right kidney—of what value is it if pain in the right kidney region is referred from a stone or disease in the left kidney? Of what use is a plate of the right kidney if the localized pain of the patient is due to chronic disease of the appendix, and so on down the line?

One commonly receives the request that a roentgenoscopic examination be made of the gastrointestinal tract, this method of examination being the choice of the consultant with a view to economy for the patient. It may be less expensive but often it is equally inexact. That is why I direct your particular attention to the drawbacks of this method of examination. Far better to indicate to the roentgenologist the clinical picture and let him choose the method of examination most likely to insure a correct diagnosis. Thus will the interests of true economy to the patient and the social order best be served.

Currently, some members of the medical profession appear to have made overmuch of "focal infection," and some of the dental profession to be surgically obsessed. In justice, much of it may be laid to the door of the roentgenologist. The terms, pericementitis, apical abscess, pus pocket, pyorrhea and necrosis are used with a freedom that is startling. Wholesale extraction of dentures or prolonged surgical procedures are initiated on the say so of the roentgenologist.

It should be written large upon the tablets of the minds of medical men and oral surgeons that a tooth that responds to vitality tests irrespective of the roentgen ray appearances of the same, is, to the best of our present day knowledge, not a cause, primarily or remotely, of morbidity.

Secondly, that every area of increased radiability seen in bony structure does not signify necrosis. Just as one commonly witnesses, for instance, in a forearm that has been at rest, say for immobilization of a fracture, an increase in radiability due to atrophy of disuse, so in the alveolar process one sees areas of increased radiability due to the atrophy of disuse especially over bridges and about teeth that improperly impinge. Such areas not infrequently are called necrotic when they are nothing of the sort.

And the x-ray character of the much discussed apical abscess or granuloma must be carefully considered. My own experience has led to the belief that, if this area of increased radiability seen at the apex of a tooth is well defined, black in tone and delimited by an area of increased density meaning calcification, the probability is that such is an abscess cavity and not a pus sac or an active source of infection.

Again, in diseases of the lung, a definite roentgen diagnosis is made altogether too often on insufficient data. I am convinced and have given my reasons elsewhere for it, in detail, that a positive diagnosis of tuberculosis may be made in certain patients on x-ray examination alone and facts governing the prognosis gained in this way and no other way. The x-ray method of examination must be the correct one and, generally speaking, a positive opinion should be rendered by one competent to do it, only after considering all the clinical as well as x-ray evidence. During the past year, at the Boston Consumptives' Hospital, I have personally examined over 800 thoraces, including suspects, early and advanced cases, and it often has been far easier to determine those not having tuberculosis rather than to say definitely that chests presenting patent evidence of pathology were tubercular. If we recollect that most of us are tubercular it is plain that the important thing to determine is who are the tuberculous sick, and this, in most cases, is a combined operation of internist and roentgenologist.

In the examination of the gastrointestinal tract the x-ray method again looms large in relation to dependability of the diagnosis rendered by its means. Diagnoses made by the roentgenoscope must be carefully weighed. The method in general is applicable to areas showing gross pathological changes. Early changes that are macroscopical to be sure, but minute, are not picked up on the fluorescent screen except by men of prolonged experience and then it is the exception and not the rule. The roentgenoscope has no place in the direct examination of the biliary tract, small duodenal ulcers are constantly missed in clinics by men employing this method, and I have seen an inoperable carcinoma involving almost the entire stomach, diagnosed by the roentgenoscope as a probable ulcer when, on plate examination, the character of the pathology was at once evident.

The point to remember is that only gross changes are recognized by the roentgenoscope.

In American clinics, at least, it is not the custom to employ the roentgenoscope in examining the genito-urinary tract or when suspicious of early bone disease. Yet when examining the lung fields and gastrointestinal tract, where the pathological changes are relatively and comparatively slight, this method is used without regard, by many, for its limitations.

The x-rays have helped us tremendously, but many parts of the body are still a closed book. We are not yet able to diagnose early acute osteomyelitis by x-rays, so that when you get a negative report pay only this much attention to it, that it means no x-ray evidence of disease was recognized. I wish we could do away with the word "negative" altogether and our work would be the better for it. Does this mean that in cases of suspected acute osteomyelitis the x-rays should not be employed? Not at all. For the x-ray examination at least gives you an opportunity to rule out other possible pathological conditions. If, clinically, you are certain that you are dealing with an acute osteomyelitis treat it surgically at once, irrespective of so-called negative x-ray findings. Sometimes positive evidence of bone change does not make its appearance for as long as five weeks.

So-called negative and positive diagnoses ought to be considered in relationship to the method of examination employed, the part examined and the one rendering the opinion. I would like to see the term "negative" disappear from roentgen nomenclature, because of the false hopes raised by it. Far better to say, "No pathology recognized," for then at once is attention called to the limitations of the diagnosis.

A negative diagnosis of gallstones is practically valueless when it emanates from a busy laboratory of a large general hospital where the gall-bladder region is examined casually. I thoroughly believe that the gall-bladder should always be examined as a matter of routine in gastrointestinal examinations, but if examined routinely and not carefully, according to the standards of the roentgenologists foremost in this work then, naturally enough, such a negative diagnosis is almost worthless.

Does all this mean that I have lost confidence in x-ray diagnosis? Nothing of the sort. It has not been my purpose to belittle, but attempt to obtain a perspective with proper alignment, which leads to the following conclusion:

X-rays are only a means to an end. Yet they may be the most important means, hence should be employed universally.

That x-ray diagnosis is directly proportional to the roentgenologist and the method employed to arrive at it.

That the fluoroscope is of decided but limited value and should not be employed alone when desiring to detect early pathological processes.

SOME NOTES ON TYPHOID FEVER.

BY DWIGHT O'HARA, M.D., WALTHAM, MASS.,

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IN the spring of 1921 there occurred, through an infected milk supply, an epidemic of typhoid fever in Waltham, Massachusetts. It will not be attempted here to present a complete résumé of this outbreak, but only to present certain features which were more particularly studied, a discussion of which may be worth while to the practitioner who is treating this disease.

THE GRUBER-WIDAL REACTION. TWO METHODS.

Clinicians still adhere extensively to the microscopic method of demonstrating typhoid agglutinins in the blood serum. The explanation of this is that the microscopic method is the only one taught in many of the best medical schools. It is, nevertheless, an inferior method; it has only one advantage to the clinician and none to the laboratory technician. The one advantage of the microscopic method to the clinician is that a few drops of blood dried on the back of a visiting card, or a glass slide, are found acceptable to the laboratory.

The macroscopic method, on the other hand, has distinct advantages over the microscopic method. Among these may be mentioned the ease with which a uniform antigen can be kept on hand, the greater precision with which dilutions can be made, and the more sharply defined end-point obtainable between positive and negative reactions. The results have the accuracy of a single note instead of the whole scale. These factors bring back to the clinician a more scientific report, and should therefore be encouraged by him, even though he must needs submit 0.5 cc. of blood or more in a small tube, instead of a few dried drops on the most convenient thing he can find about the house.

THE MACROSCOPIC METHOD.

Because the macroscopic method is not universally taught to us as students, I will describe a simple technique which gives good results.

Equipment—Ten test tubes, about 1 cm. in diameter; wire test tube rack; 1 cc. pipette, graduated in 1/100ths; water bath—(shallow agate dish, thermometer, and bunsen flame).

Reagents — Patient's serum; physiologic (0.85%) salt solution; antigen: — bullion culture, suspension of killed bacilli, or typhoid vaccine may be used. (The last is quite satisfactory, and is a useful way of disposing of vaccine which has run out of date. The polyvalent character of the usual triple vaccine must be remembered, however.)

Technique — With the graduated pipette, place in all but the first tube, 0.5 cc. of salt solution. In the first tube place 0.9 cc. salt solution and 0.1 cc. patient's serum. Mix contents of tube 1 and place 0.5 cc. into tube 2. Again mix and place 0.5 cc. from tube 2 into tube 3. Continue this process through tube 9. The tubes now contain serum mixed with salt solution, in the dilutions shown in column I below. Tube 10 contains only salt solution and remains as a control. Now add 0.5 cc. of antigen to each tube. This doubles each dilution, doubles the amount in each tube, and gives the contents of each tube a clouded appearance, due to the suspended bacilli. These are the final dilutions as shown in column II. The tubes are shaken and placed in the water bath at a temperature of 40°-45° C. for two hours, at the end of which time they are read.

Tube	1		1 : 10		1 : 20
"	2		1 : 20		1 : 40
"	3	0.5 cc.	1 : 40	1.0 cc.	1 : 80
"	4	serum	1 : 80	antigen +	1 : 160
"	5	diluted	1 : 160	serum di-	1 : 320
"	6	in salt	1 : 320	luted in	1 : 640
"	7	solution	1 : 640	salt sol.	1 : 1280
"	8		1 : 1280		1 : 2560
"	9		1 : 2560		1 : 5120
"	10	salt solution	control	+ antigen	control

Agglutination is evidenced by the formation of flake-like masses which settle to the bottom of the tube, leaving a clear, supernatant fluid. There is usually no difficulty in telling at which dilution agglutination stops. The salt solution control and the dilutions above the end-point should of course remain uniformly cloudy. This test can be set up in ten minutes, is simple, accurate, and obviates the necessity of handling living typhoid bacilli.

CLINICAL OBSERVATIONS OF AGGLUTINATION IN TYPHOID FEVER.

In a previous communication[1] it was suggested that a fall in the agglutination titre (a decrease in the agglutinins demonstrable in the patient's blood serum), was a sign of unfavorable prognosis. In order to test further this assumption, as well as to study further the agglutinating titre of the blood in typhoid fever, the following observations were made at the Waltham Hospital.

TABLE I.—AGGLUTINATION TITRE OF THE BLOOD SERUM OF THIRTY-FIVE PATIENTS DURING THE FEBRILE STAGE OF TYPHOID FEVER.

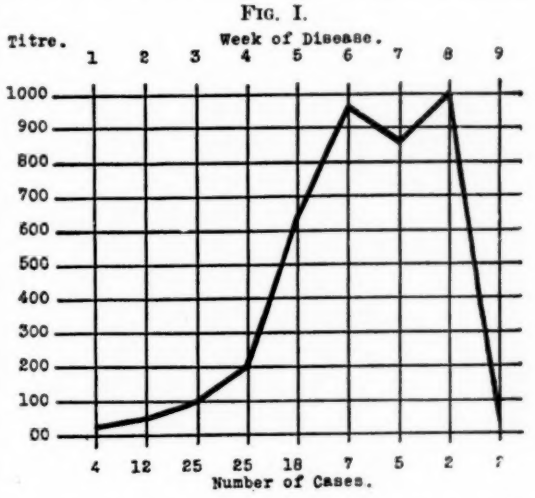
WEEK OF DISEASE		1	2	3	4	5	6	7	8	9	TOTAL
Negative		2	7	6	5	4	2	1			27
Positive		2	5	19	20	14	5	4	2	2	73
Titre	1 : 20	1	1	2	5	2	1				12
"	1 : 40			5	4	1					10
"	1 : 80	1	3	4	4	2			1	1	16
"	1 : 160			6	4	3	2	1			16
"	1 : 320		1	1		1		1			4
"	1 : 640			1	2	2			1		6
"	1 : 1280					1	1	1	1		4
"	1 : 2560				1	1		1			3
"	1 : 5120					1	1				2

Especial care was taken to make all tests uniformly. The antigen used was a salt solution suspension of Rawling's strain of bacillus typhosus, to which had been added 0.25% of tricresol, or of carbolic acid. The technique was as described above. Clinical, and in a large per cent. bacteriological evidence supported the diagnosis in these cases. A normal salt solution control was made with every test, and many of them were further controlled by parallel dilutions of normal serum.

Serum which did not agglutinate in dilutions of 1:20 was considered negative. Some may say that 1:20 is too high a dilution to require for a positive test, and while this may be so it is much better to err on the side of calling a slightly positive test negative, than *vice versa*. By this standard more than one-quarter of the tests made in all stages of the disease were negative. As shown in Table I, negative tests were obtained as late as the sixth and seventh weeks, and were not infrequent in the preceding weeks of the disease. In view of these findings it would seem to be rather too dogmatically taught, or at least too frequently stated, that agglutinins are present in the blood after the second or third week of fever.

In Figure I the results are arranged in another way. The sum of the titres for each week is divided by the number of tests for that week. This gives the average titre of the thirty-five cases studied each week. The higher titres occur mainly after the fourth week. This is doubtless another explanation of the fact "that titres of over 1 : 80 or 1 : 200 are either infrequently encountered or not noted."[2]

FIG. I.



In regard to the assumption that a fall in the agglutination titre heralds a relapse, and that a rise in the titre is a good prognostic sign, it was found that less than half of the cases could be prognosticated in this way. This does not mean that the production of agglutinins has nothing to do with the production of immunity but rather that the production of antibodies in itself does not determine recov-

ery when the disease has previously damaged the patient in vital respects. Case 6 will illustrate this reasoning.

M. P., female, 38, single. Past History—Irrelevant. Taken sick quite suddenly with cough, fever and headache. Physical examination revealed fine and medium moist râles throughout both lungs. T., 105; P., 90; R., 26. Within a few days rose spots developed and the spleen became palpable. Blood serum showed no agglutination. No blood culture was taken. Tentative diagnosis, typhoid fever.

The disease ran a very severe course, but without apparent complications until the end of the fourth week, when there suddenly appeared cyanosis, extreme dyspnoea, syncope, progressively weakening pulse, and death within twelve hours. Agglutinations remained negative until ten days before death when a test was positive 1 : 40. Three days before death it became positive 1 : 80, thus confirming the diagnosis. Death was ascribed to acute myocardial degeneraiton caused by the typhoid poisons, and this at a time when antibodies were on the increase.

No autopsy was performed, but it does not matter whether the ascribed cause of death was correct or not. To recover, the patient must not only develop an immunity in the sense of producing detoxifying and bactericidal substances, but she must produce those substances before the typhoid poisons have done irreparable local damage. This sort of immunity can be measured only by the clinical course of the individual patient, and cannot be foretold in any case.

A few unusually high titres were obtained. The highest one, 1 :5120, was negative for para A and positive 1 : 20 for para B bacilli. The highest cross-agglutination found was in a serum which was positive for typhoid 1 : 640, for para A, 1 : 160, and for para B, 1 : 80. The patient giving this serum showed as prompt and satisfactory a recovery as was seen in any case except a few very mild ones. This suggests that the kind of antibodies may be of more importance than the quantity—the quality of this patient's agglutinins being evidenced by an unusually large proportion of "minor agglutinins." None of the cases in this study were treated with typhoid vaccine.

During the course of the observations the phenomena of pro-agglutination was frequently seen. Its occurrence could not be given any clinical significance, except that it might conceivably mask a positive reaction if the dilutions were not run sufficiently high as a routine. For instance, a serum which fails to agglutinate in dilutions up to 1 : 60, but is positive in dilutions from 1 : 80 up to 1 : 2560, might well be read as negative when set up in dilutions of 1 : 10 and 1 : 50 only, as is often done with microscopic technique.

VACCINE PROPHYLAXIS.

Dr. N. P. Brackett visited every house on the milk route through which the epidemic came. With other data gathered he states that less than ten per cent. of the exposed individuals took prophylactic innoculations, and that the younger people were more ready to avail themselves of vaccine protection.[3] In this particular group of people vaccination was, of course, not especially imperative, as they all had withstood exposure from a source which was subsequently removed. It is, however, an exposition of the attitude of an "average public" toward preventive medicine. Preventive medicine must come to the community through the individual, quite as much as to the individual through the community. Until this fact is more widely recognized and dealt with, it is idle to talk of "typhoid fever, a disappearing disease."

CONCLUSIONS.

The macroscopic method of testing the blood serum for typhoid agglutinins is in every way superior to the microscopic method.

The macroscopic method should be adopted in teaching and in practice, to the exclusion of the microscopic method.

Negative agglutinations are more common in typhoid fever than is generally thought. High titres of agglutination occur mainly after the fourth week.

The pro-agglutinoid zone is a possible source of error in reading agglutinations which are not set up in the higher dilutions.

The typhoid patient's immunity, to be efficiently protective, must develop in time to prevent the typhoid poisons from doing local damage capable of causing fatal accidents. Immunity in this sense cannot be estimated by titration of antibodies.

A means of typhoid prevention is insufficient without ways to apply it. More individual education must be accomplished before the community can reap the benefits of preventive medicine.

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PROFESSOR CLEMENS VON PIRQUET has been appointed as lecturer on the Silliman Foundation of Yale University. Professor von Pirquet is Professor of Children's Diseases at the University of Vienna.

GASTRO-GASTROSTOMY FOR HOUR-GLASS STOMACH.*

By William H. Rose, M.D., F.A.C.S., Worcester, Mass.

Surgeon, Memorial Hospital.

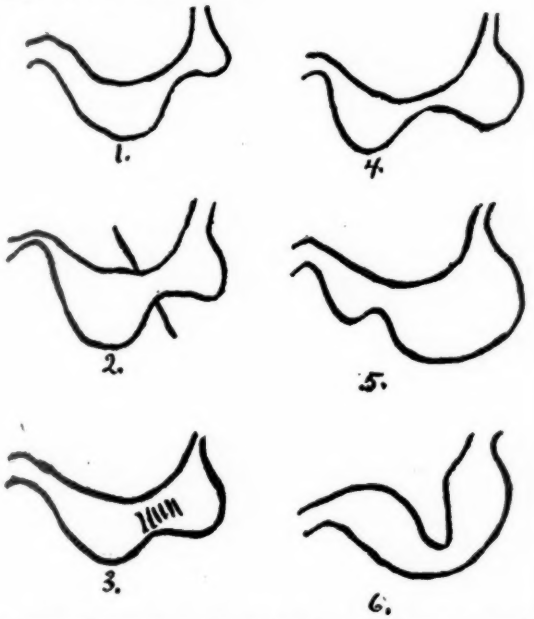
The condition known as hour-glass stomach is one where there is a constriction between the cardiac and pyloric orifices. It may be either congenital or acquired. The former is said to be extremely rare, while the latter is much more common than we believe.

Etiology.

An acquired hour-glass stomach may be due to four causes. First, contraction of a chronic ulcer situated in the body of the stomach. Second, adhesions as a result of a perforating ulcer which holds the stomach fast, either to the anterior abdominal wall or to the pancreas in behind. Third, to carcinomatous degeneration. Fourth, to perigastric adhesions which compress the stomach at or near its center.

Emil Beckman, in an article written in the *Lancet-Clinic* in 1916, stated that many of the contracted hour-glass stomachs were due to partially healed lesions of syphilitic nature. These patients gave an indefinite gastric history covering a long period of years, and the diagnosis is made largely from the x-ray findings. At this stage the patient can be relieved only by surgical measures.

The types of hour-glass stomachs are many, depending entirely upon where the obstruction is situated. According to Moynihan, there are six distinct types, as shown in the accompanying illustrations:



(1) Obstruction near cardiac end; (2) cardiac pouch concealed by adhesions; (3) growth in body of stomach; (4) two pouches connected by a narrow tube; (5) cardiac pouch largely dilated; (6) lesser curvature pulled down toward the greater.

* Read before the Worcester District Medical Society, January, 1921.

It sometimes happens that there is an obstruction at the pylorus as well as in the body of the stomach, and food after passing through the cardiac into the pyloric pouch again meets with an obstruction and thus finds great difficulty in passing into the duodenum through the narrow opening. The pyloric pouch becomes greatly dilated and hypertrophied, and thus you will readily see that any operation in the form of a gastroenterostomy between it and the jejunum will bring an unfavorable result, for the reason that the obstruction which is situated between the cardiac and pyloric portions, is unrelieved.

Then again, the operation of gastroenterostomy, whereby an opening is made in the cardiac pouch and another in the pyloric pouch, and these two openings sutured together to relieve the hour-glass constriction will fail absolutely in giving relief to a patient who has had a constriction at the pyloris.

Symptoms.

These patients always give a history of chronic ulcer of long duration, varying from many months to several years. They complain of pain in the region of the stomach immediately after taking food, and with it there is nausea and vomiting. The inability of the stomach to empty itself interferes greatly with the nutrition of the patient and causes marked nervous symptoms as well as gastric, and the patients become anemic, lose flesh and strength and are more or less chronic invalids. Unless surgical interference is resorted to these symptoms grow gradually worse and those patients are very apt to die. Either from exhaustion due to the lack of nutrition, or to some intercurrent disease that may set in.

Diagnosis.

This has been greatly simplified by means of the x-ray and bismuth meals taken in conjunction with the importance of the clinical symptoms.

Operation.

Whatever operation is performed for hour-glass stomach, one should always bear in mind that in most cases there is always a history of chronic ulcer. Charles H. Mayo, in an article written in the *Annals of Surgery* of August, 1919, stated that well over 40% of the cases of chronic ulcer, where the duration varied from many months to several years, produced carcinomatous condition. That means that practically every other case of chronic ulcer sooner or later terminates in cancer. The ideal operation is whereby the lesion in the stomach is entirely removed, at the same time leaving the alimentary canal a one-way passage. But unfortunately every case is different and each operation that is performed is done for that particular case.

Surgical Treatment.

First of all, a very careful study of the clinical and laboratory findings of the case. After this evidence has been carefully considered, the next step in the operation after opening the abdomen is to establish the diagnosis by direct examination of the stomach, intestines, gall-bladder and appendix. Then and there the operation for that particular patient is resorted to, for each case is different, and what applies to one case is unsuitable for another.

Different Operations.

First—Digital dilatation. This is one of the earliest operations, and has now been practically abandoned for the reason that a single stretch of scar tissue is almost certain to be followed by a return of the condition, and then in an exaggerated form.

Second—Gastroenterostomy. This operation is suitable in cases where the ulcer is near the pyloric end of the stomach. The operation has to be performed on the cardiac side of the hour-glass constriction, and whether an anterior or posterior operation is performed, will depend greatly upon the condition of the posterior wall of the stomach, that is to say, whether it is markedly adherent or not.

Third—Double gastroenterostomy. This operation was first suggested by Weir and Foot. A loop of the jejunum is taken and a junction made between it and the cardiac end as close to the duodeno jejunal flexure as possible, and a second anastomosis made further along the loop with the pyloric pouch. There are certain drawbacks to this operation. It may be very different to draw the cardiac pouch of the stomach and double anastomosis may have to be performed on the anterior surface of the stomach.

Fourth—Gastroplasty. In this operation a horizontal incision is made in the stenosed portion of the stomach and the opening sutured in a vertical direction. The operation advised by Kammerer is an inverted V-shaped incision through the constricted portion, and resutured so that a large opening is left between the cardiac and pyloric portions.

Fifth — Gastrogastrostomy. This operation was first advocated by Wolflier and can be performed with or without the use of clamps, and the openings are made in the normal portions of the cardiac and pyloric pouches and are sutured together by four layers of catgut sutures. This operation is performed where the constriction is single and is situated near or about the midportion of the stomach and where the ulcer is of such size that excision is impossible, and also where operations of greater magnitude would be disastrous on account of the extremely poor condition of these patients.

Sixth—Partial Gastrectomy. In performing this operation the pyloric stenosis, the whole of the pyloric pouch and the hour-glass constriction are excised in one piece, and thus the whole of the diseased area will be removed. This step is then followed by the Polya method of lateral implantation of the end of the cardiac pouch into jejunum. This operation is always performed when it is possible, in cases of cancer.

Seventh — Operation advised by Walton, whereby the ulcer is excised. The pylorus is occluded and then a posterior gastroenterostomy is performed. The details of this operation were published by Walton in *Surg. Gyn. & Obstetrics*, in September, 1919, and are as follows: In every case of an ulcer remote from the pylorus, whether situated on the posterior surface or the lesser curvature, which from its size is capable of excision, a clamp is placed obliquely across the stomach proximal to the ulcer and a second clamp distal to the ulcer. The posterior blade of each clamp is passed in turn through the gastric colic omentum beneath the stomach and out through the gastrohepatic omentum. The ulcer, if adherent, is then freed from the pancreas, no notice being taken of the fact that in many cases a perforation into the stomach is thereby caused. A V-shaped portion of the stomach containing the ulcer is now excised between the clamps.

The diseased area has now been excised and the opening in the stomach is closed in the following manner: The posterior edges are first united by two rows of continuous catgut sutures. The first row commences at the apex of the V, and passing through the muscular and peritoneal coats, terminates at the lesser curvature. The second row begins and ends at the same two points, but transfixes all three coats. The two anterior are now united in a similar manner, the through and through layers being, in this case, inserted first. The incision must be so planned that the sides of the V are as long as the diameter of the stomach. The pylorus is occluded by a through and through mattress suture of silk, which is sufficient. A posterior gastroenterostomy is then performed in the usual manner. He reports nine successful cases.

The objections to this operation are: first, it can be performed only in cases where the ulcerated area is of such size that it can be excised; second, the mattress suture of silk placed in the pyloric opening with the idea of occluding the same, temporarily, is dangerous, for it leaves a chance for the silk to act as an irritant and produce an ulcer.

REPORT OF TWO CASES.*

CASE 1. Jessie M., aged 39 years, entered Memorial Hospital July 10, 1919. Her chief complaints were pain in epigastrium, with vomiting. She had had from childhood occa-

* In both these cases a Wassermann was negative.

sional attacks of indigestion, due at the time, she thought, to indiscretion in eating.

Previous History.—On January 2, 1918, she was operated upon in one of the neighboring hospitals for retroflexed uterus and appendicitis. Further examination at that time revealed a gastric tumor, and the pyloric end of the stomach appeared to be very hard and gristly. A few weeks later a second operation was performed. The surgical findings at that time are as follows: Perforated ulcer of the stomach with probable malignancy of lesser curvature. The lesion was at the junction of the proximal and the middle third of the lesser curvature of the stomach. There is a definite hour-glass construction here and the lumen of the stomach is reduced to at least one-half its normal size. A large area surrounding the ulcer was indurated and a number of glands were felt in the lesser omentum. A cleave resection of the stomach was performed and as much as possible of the lesser omentum containing the glands removed.

Pathological Report.—A portion of the gastric wall with thickened mucosa submucosa. Ulcer about 2 cm. in diameter.

Microscopic Findings.—Old, indurated chronically inflamed submucosa. Lymphadenitis of a chronic nature. No signs of malignancy.

After this operation she was free from symptoms for about four weeks, then the pain and vomiting recurred. This continued until June, 1918. She became pregnant and her symptoms diminished in severity until two months after the baby was born, when they recurred. This was in March, 1919. On July 17, 1919, x-ray examination showed a marked hour-glass stomach and a gastrogastrostomy operation was performed by Dr. Homer Gage. The stomach was found adherent along the lesser curvature to the abdominal wall and to the liver. The pylorus was drawn to the left. Some induration at the site of the old operation. No glands felt. Hour-glass contraction at the junction of the upper and middle thirds, with the apex in the ulcer scar.

A gastrogastrostomy was performed between the proximal and distal portions of the stomach anteriorly. A large opening was made. The convalescence was uneventful, gradual improvement taking place. Since that time, which is seventeen months ago, the patient's condition has markedly improved. No recurrence of her gastric symptoms. Her general condition is very good and she has gained thirty pounds in weight.

CASE 2. Louise C., aged 39 years. Entered Memorial Hospital November 18, 1919. Chief Complaints—Pain in region of stomach, with vomiting of food. Feels very hungry, especially at night.

Previous History—Has had stomach trouble for many years. Four years ago was in a hospital where she was treated for ulcer.

Examination reveals a frail, delicate woman, whose general nutrition has been greatly impoverished. X-ray examination shows an hour-glass stomach. Examination of stomach contents shows total acidity 50%; Hcl. acid 10%.

On December 13, an exploratory laparotomy was performed and a marked area of induration was noted along the lesser curvature of the stomach which was adherent. This extended nearly to the cardiac orifice, and the stomach was contracted near its middle portion. There was a distinct band of adhesions from the lesser to the greater curvature of the stomach across the anterior portion. The adhesions were freed, but on account of the patient's general condition, which was extremely poor, nothing further was attempted.

She was discharged from the hospital on January 3, 1920, only to return with a recurrence of her symptoms on April 27. On May 7, a second operation was performed, namely, gastrogastrostomy, uniting the cardiac and pyloric portions of the stomach in the usual manner. The patient stood the operation very well and was discharged from the hospital on May 24, much improved. Since that time she has steadily improved in health and strength and has gained twenty-five pounds in weight, and has had no recurrence of her gastric symptoms.

CONCLUSIONS.

Although I realize that two cases are not sufficient proof to base any accurate judgment for the operation for gastrogastrostomy for hour-glass stomachs, and that only a short time has elapsed since the operation, nevertheless, the comfort and relief given these two people have been so pronounced that I thought them worthy of your consideration.

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NASAL HEMORRHAGE.

BY JOSEPH PRENN, M.D., BOSTON.

WHEN we look over the blood supply of the nasal septum, we mustn't overlook the fact that the blood vessels that come into its formation anastomose with each other. The anterior and posterior ethmoidals, posterior septal, and naso palatine, are practically parallel to each other and send off branches from one to another.

When there is a rupture of any vessel along the septum which is usually the cause of the

hemorrhage, what is one to do but to apply pressure to the bleeding point? We are dealing here with a condition similar to varicose veins. When a rupture of a varicose vein occurs, it is useless to apply pressure to the distal or proximal end of the vein. Pressure is most effective right over the bleeding point, and no other pressure anywhere else is necessary. So is the case here. We all realize how sensitive the mucous membrane of the nose is, and the higher we go the more sensitive it becomes. Packing of the nose, unless evenly distributed and applied to the entire area, is of very little value. The rhinologist has developed a technic, a gentle touch, and a baring of the structures, that he can work with dexterity, sponge the blood out quickly, find the bleeding point, and apply pressure to it, with very little discomfort to the patient.

SIGNIFICANCE OF NASAL HEMORRHAGE.

Location of bleeding point is important. In a number of cases of nasal hemorrhages due to nephritis, or high blood pressure from any other cause, occurring at times during some sort of excitement, the bleeding point is usually posteriorly along the vomer and occasionally high up opposite the middle turbinate. Seldom in the anterior cartilaginous part. The bleeding in many cases is arterial. We can see the strong pulsations of the septal artery. Bleeding in this class of cases is quite profuse. The patient becomes very apprehensive, excitable, which, of coures, adds to the severity of the hemorrhage, and becomes very faint.

I recall one case, in a patient with high blood pressure, where the bleeding point was high up, and the hemorrhage was so profuse that the blood forced itself through the naso-frontal duct through the lachrymal canal, into the eye. It gave the appearance of blood tears, which caused considerable alarm to the patient and attending physician.

Bleeding from the anterior septal cartilage, which is the common seat, is brought about by a variety of causes. There may be a general oozing, as in phlethoric persons. In this class of cases, it is usually capillary, deviated septum or spurrs are usually present. Correction of the septal deformity will, as a rule, give very satisfactory results. The deviation interferes with ventilation and air pressure within the nasal chambers, and promotes congestion. The submucous resuction during the process of repair, will also divert a great deal of the superficial blood circulation inward. (Prenn, BOSTON MEDICAL AND SURGICAL JOURNAL, p. 138, 1915.)

Picking of the nose with erosion of mucous membrane, resulting in frequent slight hemorrhages every time the crust is being removed. Adenoids in children will sometimes cause nasal hemorrhages, due to deficient ventilation and drainage, changes in air pressure, congestion and infection.

Nasal diphtheria will cause profuse hemorrhage at times due to erosion of the mucous membrane and forcible detachment of the diphtheric membrane, as by sneezing.

There is one more type of nasal hemorrhage which may occur both in children and in adults, that, to the writer's mind, is a form of hemophilia—a certain degree of it. When we try to clear the nasal chamber of blood with hydrogen peroxide, we find that the blood does not bubble up, in other words, the blood does not oxidize. The mucous membrane bleeds easily to the touch, showing that the vessel walls are very thin and under tone.

Treatment. After sponging the nose out quickly with cotton or gauze, dry or saturated in hydrogen peroxide and the bleeding point ascertained a pledget of cotton, either dry or, better still, saturated with a 4% cocaine and adrenalin chloride solution is applied gently but firmly over the bleeding point and held there with forceps for a minute or two. Then the bleeding point is cauterized. Various chemicals are used; chromic and trichloracetic acid give very satisfactory results. The writer finds trichloracetic acid crystals brought to a melting point by immersing the bottle containing it in hot water, then a cotton wound applicator immersed in the solution just to wet it, and applied to the bleeding point with slight pressure, to give very good results. All the steps enumerated must be exercised with despatch, otherwise the nasal chambers fill up with blood again, and the cauterizing chemical is washed away.

In the hemophiliac form of hemorrhage, two cases stand out preëminently. One, a child of four years, very anemic, who used to bleed frequently and profusely since infancy. The hemorrhage used to occur sometimes twice a week. Packing was mostly resorted to, with not very good success, not immediately, anyway. It might have been due to the difficulty in packing in a child of this age, and the forceps causing erosions to other parts of the mucous membrane, which started up new hemorrhages. Adrenalin chloride was of no avail. Cautery by the above method was applied, and the child went without bleeding for about six months, when bleeding occurred again, but this time in a very mild form, so that they could easily stop it. The next time the child bled was about a year after, during the influenza epidemic. Cautery was used again, with success.

Another case was that of an adult who had been bleeding frequently and profusely since he could remember. He was diagnosed by some as hemophiliac. Cautery was used by the above method. Bleeding stopped for about three weeks. The bleeding occurred again in a different site, and in a much milder form.

He was cauterized again, twice, as longer intervals, with success.

From the description of the anatomy of the blood supply at the beginning of this paper, we can readily see that when we cauterize the bleeding point at hand, rupture of some other anastomotic vessel may occur, which will necessitate another cautery. As a rule, however, cauterization at one sitting is sufficient. The weakest points have been obliterated and the local circulation readjusts itself.

NON-SPECIFIC PROTEIN THERAPY.

By John C. Potter, M.D., Framingham, Mass.

Any successful therapy dealing with the diseases of the human body must necessarily and fundamentally take into recognizance the rational causes of disease and the corrective influences required to reëstablish normal conditions of health. To fix these facts firmly into our minds we must remember that perfect health standards call for an absolutely complete balance in all those variable and complex chemical constituents which establish true metabolism and unimpaired functional activity in all the vital organs. When a condition of this nature exists we have not only a sound body but a sufficient resistive and recuperative force to protect it from the effects of ordinary pathological changes due to causes other than the invasion of specific bacilli, such as produce typhoid, tuberculosis, syphilis, gonorrhea, etc.

The natural vigor of the body is, generally speaking, dependent upon the condition of the blood, and the first thought of the pathologist should be to establish a proper degree of phagocytosis, as a means of engulfing and digesting all invading toxins and bacteria, and of proper erythrocytosis, as a means of eliminating such bacterial and other toxins through the natural source—the liver. The most direct method of vitalizing the blood stream and of supplying the needed elements of repair is, naturally of definite importance, and here, again, rational methods should be employed. Various chemical substances used in the medical treatment of disease require that they be administered orally, because certain foreign elements they contain would set up irritation or clog the circulation and must first be subjected to the digestive process to insure the necessary elimination of such substances. In other medicines, especially the plant proteins, whose active therapeutic principles are naturally in proper chemical form, the administration should be direct, employing the intramuscular or intravenous method, as their subjection to the digestive process would so change and modify their therapeutic value that the effect produced would be no greater than when the same plant was taken in the form of food.

Non-specific protein products belong in the latter classification, being prepared wholly from substances of plant origin, whose chemical and bio-chemical elements are in a form for direct administration into the tissues. These ingredients, employed in proper scientific combinations, according to the conditions produced by various pathological changes, called diseases, consist of non-specific and polyvalent vegetable proteins, enzymes, ferments, vitamines, cholorophylls, acids, lipoids, etc., which are selected for the particular effects they produce upon the causative factors of the disease to be treated. For this reason, a different combination is required for each different disease, although the basic combination, because of an increased number of red and white blood cells, is practically the same in all of these preparations. It is well to give especial emphasis to this status of non-specific proteins—that their therapeutic value rests upon the proven fact that certain of the degradation (hydrolytic) cleavage products of proteins have the power to increase the number of phagocytes when supplied to the circulation and also to stimulate phagocytosis, which is accomplished by their stimulating action upon the tissues which produce such cells.

This theory is no longer a new departure in medical science and research, but has been amply vouched for by many investigators, both in the United States and Europe, as reference to any of the following authorities will show:

Editorial, "Non-Specific Protein Therapy," *Journal A. M. A.*, May 17, 1919.

Cowie, D. M., and Bevan, P. S., "Non-Specific Protein Therapy in Influenzal Pneumonia," *Journal A. M. A.*, April 19, 1919.

Miller, J. L., and Lusk, F. B., "The Treatment of Arthritis by the Intravenous Injection of Foreign Protein," *Journal A. M. A.*, June 3, 1916.

Snyder, R. G., "Clinical Report of Non-Specific Protein Therapy in the Treatment of Arthritis," *Archives of Internal Medicine*, (A. M. A.), 22:224, August, 1918.

Nolf, P., "Proteosotherapy by the Intravenous Method," *Journal A. M. A.*, November 22, 1919.

Report of the International Health Board, *Journal A. M. A.* (72:75), March 8, 1919.

However, as pointed out in an article by Dr. T. Harris Boughton, of Chicago, in the *Journal A. M. A.*, Dec. 27, 1919, there is always grave danger of anaphylaxis when using the serums containing animal proteins. This danger is obviated by the use of vegetable proteins, through their stimulating action upon the cytogenic processes, increase the number of red blood corpuscles, or erythrocytes, and the bacterial and other toxins are eliminated, instead of being merely set free and permitted to produce anaphylactic results. Animal proteins, it is well to remember, may stimulate phagocytosis to a degree which may flood the system with bacterial toxins, but they do not provide for their expulsion through the power to stimulate erythrocytosis.

As the non-specific protein therapy is based upon rational principles, the reason why a stimulation and increased number of red blood corpuscles are necessary to combat disease should be understood. It may be truthfully stated that the erythrocytes really complete the work of the phagocytes. The former, as so ably shown in the accepted theory of Metchnikoff, when a bacterial infection is to be combated, engulf the invading microörganism, where they undergo a process of digestion or splitting. By this process the toxins which have hitherto been confined in the bacterial body are liberated and become diffused through the tissues unless the red corpuscles are present in sufficient number and vigor to take care of them. These toxins are engulfed in much the same manner that the bacilli are engulfed by the phagocytes, but the erythrocytes have not the power to cast them out, like the phagocytes, and both the red cell and its engulfed toxins are borne to the liver, where their destruction and elimination are accomplished. This comparatively new office of the red corpuscles has been determined by both Horovitz and, more recently, by P. Govaerte, who convincingly demonstrates his findings in a report in the "*Comptes Rendus des Séances de la Société de Biologie,*" in the issue of May 31, 1919. The action, therefore, of non-specific proteins upon the cytogenic processes, increasing the number and power of both the phagocytes and erythrocytes, becomes a potent influence of destruction upon bacterial infection and an agency for the harmless elimination of consequent toxic matter, indicating its value in all such treatments.

Briefly stated, the therapeutically active plant elements may be described as follows:

1. Vegetable proteins and their degradation products, which exert a general influence in stimulating phagocytosis and causing the destruction of bacteria.

2. Especially selected vegetable proteins and their degradation products, which overcome the toxic end products liberated through the digestion of bacteria by the leucocytes.

3. Plant acids of a specific nature ,which neutralize ordinary toxins or virulins, set free through perverted metabolism or bacterial infections.

4. Special enzymes, which have a corrective influence upon disturbed metabolism and derangement of vital functions.

5. Chlorophyll, or those of its products which constitute an efficient material from which the hemoglobin of the red corpuscles is produced.

In combination it is claimed that these plant elements make a product of unusual dependability in the treatment of diseases within their indicated therapeutic field and that they are a means of treatment fully worthy of the physician's confidence and adoption.

The Massachusetts Medical Society

REPORT OF MEETING OF GROUP IV.

On Wednesday, November 2, 1921, at Essex Sanatorium (Tuberculosis), Middleton, Mass., occurred the largest and most enthusiastic group meeting of District Societies under the plan initiated by former President, Dr. Worcester, and so well carried out by the Council committee appointed for the purpose, with the hearty coöperation of the officers of the various districts. These societies, as Group IV, assembled at 2 P.M., upon invitation of the Trustees and Superintendent O. P. Pettingill, M.D., namely, Middlesex North, Middlesex East, Essex South and Essex North.

Following a short period of social intercourse, the meeting was opened with Dr. P. P. Johnson of Peabody, President of Essex South, in the chair, and two hundred Fellows present.

All the speakers who addressed the meeting spoke interestingly and to the point, and all received the hearty applause of the gathering.

The first address was given by Dr. J. W. Bartol of Boston, President of the Massachusetts Medical Society, who said that there was a certain danger of the medical profession losing its old-time good repute through the wrong impression given the public by misguided people who can see nothing but a selfish interest in the medical profession, wholly erroneous, however, in all legislation proposed in the interest of the public health. It was his opinion that legislators are apt to be governed by advice from people whom they may know or respect, but if that information is bad, faulty, or narrow, and no well informed persons show the legislator that he has been misled, his vote or action may be wrong without intention. Dr. Bartol thought that if these joint meetings were to measure up to the intention of their proposer, they should accomplish some valuable work, and he felt that such would result. He further suggested that one important aim of these group meetings was to demonstrate to each Fellow his duty to help in all possible ways the important work outlined by the Committee on State and National Legislation.

The next speaker was Dr. C. F. Painter of Boston, Chairman of the Committee on Medical Education and Medical Diplomas, who stated that he felt certain that if the public could be shown that the quality of the licensed physicians of Massachusetts is an important public health measure, much could be accomplished in raising standards. In the past, at hearings on legislative public health matters, the opponents of good medical legislation were always noisy and active, and ready with all sorts of expedients to accomplish their unholy ends. He was of the opinion that a large proportion of our average good citizens were yet so poorly informed on medical matters that it resembled the period, long past, when magic was a great factor in medicine, and not science. He felt that in order to get best results we must get back of the legislators and to the public, and drive home the truth. We desire only honorable, proper and beneficial measures on the statute books. He offered a plan to accomplish his ideas, as follows: that district societies arrange public meetings in suitable places, and that they provide proper audiences. At these meetings, members of the district societies should appear and explain the objects of beneficial proposed legislative matters, and in this way the voters can apply proper pressure on the legislators to favor helpful medical measures.

J. S. Stone, M.D., of Boston, the Secretary of the Committee on State and National Legislation, was the next speaker and he outlined the past accomplishments and future program of his committee. He remarked on the vast amount of misinformation delivered at the Legislature each year by honest but misguided persons. The matter of anti-animal experimentation appeared last year, but its proponents did not come to the hearings, and it was not pressed.

The anti-vaccinationists are always with us, and we must continue to inform the public of its great bearing on the good health of the people. Medical education is important, and while advocating it strongly, we must do all we can to see that country districts are supplied with good physicians, as the lack of such supply is an important point in the minds of legislators in voting on bills which further restrict activities of even acknowledged poor medical schools. He further felt that we should endeavor to have all existing good schools do everything possible to handle all students available. His opinion was that having passed the various school physician, school nurse, and physical examination bills, it is now the duty of physicians to see that such work is done properly. He outlined some of the maternity aid bills and was of the opinion that when the most suitable one, whichever it was, had been made a law, we need not fear the bugbear of state medicine. The question of licensing private hospitals and lying-in institutions is important and, he felt, should be turned over to medical hands as most competent to judge fairly of the interests of the public. He judged that the hospitals doing mixed work should have separate wards for obstetric cases and the parturiant women would thus be better protected from sepsis, likely to be communicated from pus surgical cases.

Dr. C. Frothingham of Boston, Chairman of a Committee to Investigate the "Cults," gave a comprehensive and interesting account of the work of his committee, which it is hoped can later be published in full, and when completed will clean up this matter in the minds of the physician and help the laity to form a true opinion of these illy-prepared business practitioners. He felt they were many and were dangerous, to sick and well, and had the earmarks of cranks, and all without medical education. It is important to the best public health to know just what osteopaths and chiropractors are. Literature on osteopathy is scant and unsatisfactory. From the best to be learned, it is founded on a theory, and cannot say whether the theory or the practice came first. The theory is that in the body are all the elements of health. If the circulation is out of order the patient is ill, because the blood does not carry to the body all the elements. The vasomotor system, the reflexes and inhibition are large parts of the theory, and if one believes in this system, scientific knowledge is unnecessary. No amount of reading shows any

reasonableness for the beliefs. The system continually compares the osteopathic treatment with drug action, as though that was the only medical method of treating disease. We are glad, as educated physicians, that drug therapy is rapidly falling into its proper place in medical work.

In regard to chiropractics, there is no literature whatever, and it appears to be pure quackery, and can be best understood by reading the prospectus of a school for such dupes, in which an important part of the course is stated to be, "How to advertise." It is recommended that we use less intolerance, that we educate the public to the fact that in them they have agents of questionable value, that they are cranks, and then the public will insist that they have some medical education. Also we may consider them as "doctors" since they are registered, and try to make more stringent laws for their control.

Dr. W. P. Bowers of Clinton, Editor of the BOSTON MEDICAL AND SURGICAL JOURNAL, was the next speaker, and told of the good progress and favorable outlook for our JOURNAL, and it is apparent that with the coöperation of all, a journal of great influence and value to the profession of New England is in the making.

Our guest, B. Loring Young, Esq., Speaker of the House of Representatives, was next introduced with great enthusiasm, and speaking as a citizen of Massachusetts, he showed clearly that he had a deep and fundamental understanding of the relations of the public, the profession and the health problems of the day.

Dr. C. E. Abbott of Andover, a member of the present Legislature, and Dr. Eugene Kelley, Commissioner of the Department of Public Health of Massachusetts, spoke interestingly along medical lines.

The success of this good meeting was such that it was unanimously voted that the Chairman appoint a committee to carry out plans for its continuance.

J. FORREST BURNHAM.

November 4, 1921.

Book Review.

A Physical Interpretation of Shock, Exhaustion, and Restoration; an Extension of the Kinetic Theory. By GEORGE W. CRILE, M.D. Edited by AMY F. ROWLAND, B.S. Henry Frowde and Hodder & Stoughton, London, Publishers, 1921, pp. 232, incl. Bibliography and Index; 120 Illustrations.

The book is a consistent sequel to Dr. Crile's many previous publications upon this subject. It presents an argument, often admittedly speculative, in favor of the hypothesis that histologically demonstrable changes in the brain, liver, and adrenals form the basis of shock and exhaustion. These changes, which are presumed to be specific, are held to be explainable by the "laws of biologic adaptation"; that is to say, a defensive mechanism selectively evolved suffers or breaks down under its response to external influences. Every effort is made and arguments are insistantly repeated to show that the brain is the center of this defense and the key to its integrity.

The first chapter is devoted to experimental evidence in support of the argument. The effect of traumatism of various kinds upon the brain, liver, and adrenals of many animals and man is demonstrated by beautifully reproduced microphotographs. The protective effect of morphia, of nitrous oxid anesthesia and of nerve blocking, and the restorative action of sleep are demonstrated in the same way. In respect to the brain, the interpretation of injury to the cells even when anesthetized by ether is shown to be "due to the response of the brain as if in a futile effort to escape injury."

Perhaps the most valuable work quoted is that by Crile and Dolley on the effect of complete interruption of the circulation upon the brain, the sensitiveness of the various governing centers to this condition, and a comparison of their sensitiveness with that of other tissues. The importance of the bulk of the evidence presented in favor of the author's claim that cell changes in the brain, adrenals, and liver are responsible for the establishment of exhaustion and shock is considerably minimized by: (1) the fact that the evidence *is* histologic and therefore peculiarly subject to misinterpretation by human observers, however competent; (2) the fact that as regards the adrenal, the changes figured are always in the cortex rather than the medulla; and (3) the author's own statement on page 82, which is here quoted, "We found (in all animals investigated—*Reviewer*) in every instance the same cycle of changes—the same histologic evidence of exhaustion, *provided and always provided* (italics —author's) that the animal lived for two or more hours in shock or exhaustion before the specimens were secured," a statement which may be taken to mean that the changes are in fact secondary to exhaustion, already established by some other mechanism.

A section of this chapter is given to H-ion concentration and reserve alkalinity of the blood, and another to preliminary work upon electric conductivity of the various organs involved in exhaustion. The author finds that the electric permeability of such organs is altered in exhaustion and shock; that in the case of the brain and adrenal the conductivity is diminished in proportion as degenerative changes in the cells are marked; but that in the liver, conductivity is increased under the same conditions. He concludes (page 101,

italics—author's) that "*intracellular changes in exhaustion and shock which are revealed by the microscope are paralleled by alterations in electric conductivity, and that both the histologic and the electric changes bear a direct relation to the vitality of the organ.*" It would appear, therefore, that in the case of the liver it is the *change* in conductivity rather than the increase which is important. The research upon electric conductivity is still in progress, but no account of experimental methods is given.

Chapter II discusses the mechanism of exhaustion from the point of view of the organ or system primarily involved. The pulmonary system is found not to be a primary cause. The heart in exhaustion and shock does not primarily fail, nor are changes in the blood or vasomotor mechanism primary, but rather secondary causes. The voluntary muscles are dismissed in a few words. The adrenals are indirectly an important cause, since they have a vital influence upon the brain and liver. The author is primarily less interested in the facility which the adrenals display for answering to the emotions and for speeding up carbohydrate metabolism than in the histologic changes which an excess or loss of adrenal secretion produces in the liver and brain. He is unable, however, exactly to define the role of the adrenals in exhaustion.

In discussing the part played by the liver, the author is evidently leading up to the relation of the central nervous system to other organs in exhaustion and shock. For he finds that the liver by its storage property, its avidity for acids, and the tendency of its cells to autolysis is apparently the natural protector of the brain against want of sugar and against intracellular acidosis. Moreover, the brain cell is rapidly disintegrated after excision of the liver, while the liver function is not disturbed by decapitation. Yet Dr. Crile concludes that since "the liver has no means of immediate contact with external excitants of shock and exhaustion, it apparently in some way is influenced indirectly through the mediation of the brain." (Page 116)

The section upon the brain as an energy transforming organ opens the argument which is continued and amplified through the remainder of the book. Acknowledging his indebtedness to Mathews, the writer presents the view that the brain tissue is the most important in the body from the point of view of blood supply and the consumption of oxygen, and that the work of the brain is greater, weight for weight, than that of any other tissue. The brain cell is held up as a master cell, highly receptive, but possessing no mechanism of protection against deprivation of oxygen, against acidosis or against starvation. It is in fact, "stripped to its decks to fight the battle of life." The protection given it by the liver (vide supra) and the rapid elimination of waste by other organs constitute its safeguards. It has then a purely energy transforming function. Its restoration from fatigue is obtained through sleep.

He goes on in the third chapter to describe the intracellular process of exhaustion. With this he finds that changes in acidity are associated and introduces his conception of the nerve cell as an electric battery. The relation of the acid nucleus with the basic cell substance is that of electrolytes. The impulse which passes down the nerve fibre from the cell is held to be a true electric current and a great deal of pain is taken to show why and how the speed of this current is diminished as compared with that passing over any good conductor (special character of nerve fibre and of synapses, etc.). Experimental evidence is quoted to show that carbon dioxid is produced and much oxygen consumed in the passage of an action current down a nerve. This is in harmony with evidence introduced in a previous chapter (Page 118) that the brain's consumption shows it to have a metabolism five times greater than that of all the voluntary muscles in their quiescent state. That this intense energy has not been shown experimentally in the basal metabolism, Dr. Crile admits, and indeed adduces evidence to prove. He makes this inconsistency serve his argument, however, by reasoning that since no heat is produced in the activity of nerve tissue the "presumption is strong, if not conclusive, that nerve cells transform potential into *electric* energy." (Page 133. Italics, reviewer's.)

This conception is amplified to make man an electrochemical mechanism whose "brain and nerve cells have been evolved in the age-long struggle for survival for the transformation of potential energy into electric energy. . . . . The acid by-products of energy-transformation in the brain-cells are at once picked up by the buffer substances in the rich supply of blood and lymph and in turn these substances are taken from the blood by the liver." (Page 143.) When this process fails in the presence of lack of oxygen, lack of food or water, overwhelming stimuli, excessive work, etc., acidosis develops, the cell batteries are depolarized, and the brain is exhausted. "Sleep is the daily restorer of the brain, hence restoration, like exhaustion, begins and ends in the cells."

Chapters V, VI, and VII are even more frankly speculative in nature. Chapter V takes up for the most part, the adrenals and thyroid which are called the "Activators." Over-function of these glands is suggested as one of the causes of chronic as well as of acute exhaustion.

Chapter VI contains a most ingenious explanation of the nature of pathways through the central nervous system. The white matter of the brain is suggested as the matrix upon which "action patterns" are written.

Chapter VII supplies an explanation of nervousness, fever, thirst, death, from overwhelming infections, exophthalmic goiter; of the electric conductivity of malignant tumors and their reactions to radium; of anesthetics; and of tetanus and strychnine poisoning.

It is a relief in reading the book to come to the solid substance of the chapter upon the practical application of the "kinetic theory" in treatment. Here the importance of water, opium, oxygen, heat and sleep is defined and emphasized. Operative procedures causing shock are forbidden and the shockless anesthetic and operation are described.

An excellent summary, a very complete bibliography, and an index complete the book, which is beautifully printed, illustrated and edited.

One lays down this very unusual volume with a feeling that the author's wish to believe is responsible for much of the reasoning and for conclusions drawn from what appear in many instances to be the scantiest sources. If well authenticated facts are necessary to the construction of a reasonable theory, the book is not convincing. Yet everyone will agree that such a stimulating hypothesis as is here presented is likely to serve as a basis for progress. Attractive chemical and astronomic theories have appeared, been accepted and have finally passed on as patient research has demonstrated their weaknesses and supplemented with new knowledge. And though the scientific reasoning displayed by Dr. Crile in this book should not entitle him to fame, it remains true that he has contributed more to the avoidance of shock in surgical procedures and to advances in the treatment of the exhausted patient than any other man living.

Current Literature Department.

ABSTRACTORS.

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THE SYMPTOMATOLOGY AND DIAGNOSIS OF FOREIGN BODIES IN THE AIR AND FOOD PASSAGES, BASED UPON A STUDY OF 789 CASES.

CHEVALIER JACKSON (*Am. Jour. Med. Sci.*, May, 1921, clxi, 5, p. 625) states that the most frequent cause of the failure to diagnose the presence of foreign bodies in the lung is the common idea that such a condition causes immediate and severe symptoms. On the basis of material accumulated in the Bronchoscopic Clinic, the author establishes a new symptomatology, which forms a satisfactory working basis in the diagnosis of these conditions.

Foreign Body in the Larynx: Although the majority of cases give a history of irritation, spasm, or obstruction of the larynx, there are a considerable number in which no laryngeal symptoms are noted at any time. The foreign body may be arrested at the entrance of the lower air passages, and its presence may cause unconsciousness or even death with "the rapidity of a lightning stroke." Commonly cough, at first severe, soon subsides. Some hoarseness is common. The common method used by parents or patients themselves of inserting the finger into the throat to remove the foreign body is responsible many times for its entrance into the larynx when it would otherwise remain in the esophagus or be swallowed.

Subjectively, the sensation of an intruder, sharp pain near "Adam's Apple", referred to one or both ears, impairment of phonation, and dyspnoea are the more marked symptoms. The diagnosis of laryngeal foreign bodies in infants and young children depends much on the history.

Symptoms of Foreign Body in the Trachea: As a rule there is a history of initial laryngeal spasm which subsides bnt leaves behind wheezing respiration and cough, paroxysmal and severe. The movements of the foreign body in the trachea can be felt by the patient and often heard by placing the stethoscope over the trachea. Increasing dyspnea is present as a rule. Sudden shutting off of both the expiratory blast and phonation during paroxysmal cough is almost pathognomonic of a movable tracheal foreign body.

Symptoms of Foreign Body in the Bronchi: The lack of a history of initial laryngeal spasm by no means excludes the possibility of foreign body being present. After entering a bronchus a metallic foreign body or one of non-irritating character may cause no symptoms for weeks or months. If, however, the bronchus is completely plugged, reaction is usually prompt and vigorous. Pain in the chest is rare, and the patient cannot localize the foreign body, as a rule. In latent cases, the taste and odor of pus, and pussy sputum are important. Dyspnoea is rarely felt. Cyanosis is rare. Cough is often not developed for a number of weeks. Hemoptysis is not uncommon. Fever is a variable symptom, pulse rate is usually higher than the temperature, night sweats are common in the chronic septic foreign body cases, in which progressive emaciation is the rule.

Examination in the early stages usually reveals limited expansion of one side of chest, muffled tympanitic percussion note, markedly diminished or absent breath sounds on the affected side, and many rales and harsh breathing on the free side.

Many interesting cases are cited, and the author gives a well tabulated statement of his conclusions. Perhaps the most important to the practising physician is the following: "All cases of chest disease should have the benefit of a radiographic study to exclude bronchial foreign body as an etiological factor, and negative opinion should never be based on any plates except those of the utmost perfection. In doubtful cases, the negative opinion should not be conclusive until a roentgenologist of long and special experience has been called in consultation. Even then there will be a special case calling for diagnostic bronchoscopy."

The article is a most valuable contribution to our knowledge of the subject, and should be studied by anyone interested in diseases of the chest.

[C. H. L.]

Renal Dwarfism.

H. Barber (*Quarterly Journal of Medicine*, April, 1921) describes an interesting condition resulting from chronic interstitial nephritis in childhood. The stunting of the growth is very marked, the average height in seven cases being ten inches below the normal. The nephritis apparently develops in early childhood or infancy, and is of unknown etiology. The lack of development does not become striking until about the seventh year. At the age of puberty bony changes of the nature of late rickets appear, the most common deformity being a pronounced genu volgum. X-ray pictures show enlargement of the epiphyseal line with irregularity of calufication, similar to rickets. The course is progressive, most of the cases dying of uremia before reaching the age of twenty. The absence of hypertension is the only striking departure from the picure of ordinary chronic interstitial nephritis as it occurs in the adult. Sexual development is sometimes, but by no means always, interfered with. [W. T.]

Retroperitoneal Masses by the Aid of Pneumoperitoneum.

L. R. Sante (*Am. Jour. Roentgenol.*, 8.129, March, 1921) states that the pneumoperitoneum method of x-ray diagnosis is useful for determining the presence of retroperitoneal masses where diseases of the kidneys or other organs are suspected.

The patient is prepared by evacuating the bowels by means of a vegetable cathartic the night before, and emptying the bladder immediately before the examination. The patient is placed on the table in the prone position with the body supported by two blocks in such a way that the abdomen will sag freely and that there will be no pressure on the intra-abdominal contents. With the patient so placed and the x-ray tube in the horizontal position passing through the body from side to side, there will be seen in the normal patient a clear space between the retroperitoneal structures and the abdominal viscera. If any retroperitoneal masses are prseent this normal clear space will be encroached upon. Where the lesion is in the pelvis, and likely to be obscured by the innominate bones, the patient is rotated towards the side of the mass and viewed obliquely. The author cites four cases to illustrate the value of this method. [H. A. O.]

Unilateral Alterations in Blood Pressure.

Cyriax (*Quarterly Journal of Medicine*, July, 1921) reports very considerable differences in the blood pressure in the two arms, occurring in a variety of conditions without other disturbance of the circulation. In a former article he reported a series of surgical cases in which differences of 10 mm. or over were present in 83 per cent. and differences of 20 mm. or over in 12 per cent. of the cases. The difference was found more commonly in operations and injuries confined to one side of the body. In the present paper he reports further observations on surgical cases, and also a study of the pressure in medical cases. The former confirm his previous findings.

In the medical cases the sign was often found in unilateral disease, and also, in a considerable number of cases of bilateral, and of constitutional diseases. In the latter group differences in the systolic pressure of 10 mm. and over were found in 35 per cent., and of 20 mm. and over in 7 per cent. of the cases. The corresponding figures for the diastolic pressure were 45 and 4 per cent. respectively

These observations, which are new, show the need for caution in drawing conclusions from marked differences in the blood pressure in the two sides, in cases of suspected aortic aneurysm or intrathoracic tumor. [W. T.]

The Relation of Blood Viscosity to Blood Pressure.

It has been suggested that the viscosity of the blood and the systolic blood pressure would run parallel. Lyon (*Quarterly Journal of Medicine*, July, 1921) reports an extensive study of the viscosity of the blood. Although viscosity is an important factor in the blood pressure, his observations show that changes in viscosity are usually readily compensated by the heart and vasomotor system, so that the blood pressure is maintained at the normal level.

In health there is a gradual increase in both the viscosity and the blood pressure with advancing years up to middle age, after which period the former falls while the blood pressure rises. This discrepancy he explains by assuming that the increase in blood pressure is only apparent, owing to the increased resistence to compression resulting from the arterial thickening of old age.

In disease all possible combinations of blood pressure and viscosity were encountered. Cyanosis was found to be associated with increased viscosity while anemia and edema tended to decrease it. The question of parallelism between the viscosity and the blood pressure depends upon whether the normal processes of compensation are available or not. [W. T.]

Adenomyoma of the Fallopian Tube.

Mahle, A. E. (*Surg., Gyn. & Obstet.*, July, 1921) states that the term "tubal adenomyoma" is a correctly applied term to adenomyomata in the tube, since the origin of the glandular portion is from the mature epithelium of the tube. The hypotheses of the origin of tubal adenomyomata from the wolffian and muellerian ducts are untenable. Tubal adenomyomata are in every case associated with an inflammatory condition and most probably are end products of the process of inflammation. Some relation exists between sterility and the presence of adenomyomata of the fallopian tube. There are some slight histological differences between tubal adenomyomata and those commonly found in the uterus, but this difference is most probably due to the place of origin and subsequent development and not to the etiological factor. [E. H. R.]

Viability of Spirocheta Pallida in Excised Tissue and Autopsy Material.

Lacy, George R., and Haythorn, Samuel R., (*Am. Jour. of Syph.*, Vol. v, No. 3, July, 1921). The authors became interested in the question of the occurence of spirocheta pallida in dead tissue, when actively motile spirocheta were found in the blebs and organs of a stillborn congenitally syphilitic infant which had been kept in a refrigerator twenty-six hours prior to autopsy. They conducted experiments in order to determine the time during which the spirocheta pallida remain alive in dead tissue, the criteria being the motility of the organism and its ability to transmit the disease to a new host.

Their results are summarized below:

Spirocheta kept in serum or moist tissue, either human or animal, may retain slight motility as long as three months or more. Reliable dark-field examinations can be made on tissues or fluids collected several hours previously, provided they are kept moist and cool. Complete drying is probably fatal to the spirocheta pallida, since each of the rabbits used by the experimenters failed to develop syphilitic lesions when inoculated with dried spirocheta. This is in accord with the work of Neisser. Spirocheta pallida may, and in the case of the authors did, remain virulent in autopsy material for twenty-six hours or longer.

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CHRISTIAN SCIENCE AND CANCER.

THE activities of Cancer Week have brought out a protest from a representative of the Christian Scientists to the advice of Professor Wolbach, in which advice victims of cancer were warned to avoid applying to practitioners of this faith for relief. As has been noticed before, the opponents of medical teachings employ arguments based on the isolated remarks of some physicians or the attitude of a few physicians, ignoring the consensus of opinion of the great mass of the leaders in the profession.

The argument in favor of Christian Science treatment of cancer in this criticism is founded on statements in a book published by Professor Charles F. Kent and Professor Jeremiah M. Jenks, reading as follows: "Gradually the fact is dawning upon us that thoughts are as real for us as gravity or dynamite." And in further support, this critic cites the possible result of a telephone call for help from a distant friend with the reasoning that the response demonstrates the power of unknown forces, thus building up the claim that good may come through influences which are beyond human comprehension.

Many objectors to medical teaching and practice are sincere and honestly believe that facts are misinterpreted, and led by their own beliefs attempt to substitute some procedure for generally accepted medical customs. If such beliefs were applied to less serious problems than cancer the world could wait with some degree of patience for these theorists to adjust themselves to the growing consensus of opinion. The day of inaction, however, is known to be as fatal in the end as sitting by a burning fuse which leads to a charge of dynamite. In rare instances the fuse may cease to burn, just as some scientific observers have testified that there may be spontaneous cure of all malignant disease, but spontaneous cure of cancer is extremely rare, probably one of the most unusual exhibitions in nature. The disasters of delay are abundant and regularly recorded. Probably the opinion of one medical practitioner, that early radical removal of cancer is not of value, would be controverted by the opinion of other thousands. The observers in all hospitals of standing are practically unanimous on this subject. The Christian Science teachers have comparatively little opportunity to study the behavior of cancer, and as a class are not competent to do so, hence, expressions of opinions on this subject are as devoid of logic as the criticism of the demonstration that the earth is a sphere.

If this discussion was purely academic, one could be charitable, but the errors of belief have tragic importance, and incalculable harm in done to a sufferer blindly trusting the teachings of theorists.

We have no quarrel with any teaching which deals purely with religious faith, but one who has had experience with cancer recoils with horror from the dogmas which pretend to deal efficiently with an operation of natural laws by occult means contrary to demonstrated facts. Have Christian Scientists ever studied and reported cures of cancer by their methods? If so, where are the records?

The world is eager for information, and will find all that is available in the records of hospitals and testimony of accredited investigators. The man who tries to win a cancer sufferer away from the surgeon by suggesting the Christian Science alternative, may be taking upon himself the responsibility of a human life. The fatuous teachings of Mary Baker Eddy may be his consolation, but if he has real sympathy for his fellow creatures he should attempt to inform himself of the human sacrifices which have been the result of tactics applied in the prevention of recognized remedial measures.

The teachings made public during Cancer Week have placed the facts squarely before the public. They must choose between scientific medicine and the false prophet.

THE ALCOHOL PRESCRIBER.

DR. CHARLES W. ELIOT is reported in the public press as saying that "Multitudes of physicians are prescribing alcoholic liquors for the money they get out of it."

Dr. Eliot has always been regarded as a clear thinker, not given to extravagance, and furthermore, a devoted friend to medicine. His influence on medical teaching has been constructive. His addresses at the annual meetings of the Massachusetts Medical Society have been instructive and inspiring. His criticism cannot be construed as actuated by prejudice, but one may properly suggest that if he has accurate knowledge in support of his statement that he, in common with all good citizens, should place the facts before officials who are endowed with power to deal with physicians who are guilty of "gross misconduct in the practice of their profession."

Records show that there are less than fifty-five hundred physicians in active practice in this State. Of this number, 3600 have taken out licenses to prescribe alcoholic liquors for medicinal use. While it is common knowledge that a proportion of the people are not law abiding and that this indisposition to obey the letter and spirit of enacted laws is found, to some extent, among physicians, it is a reflection on the profession as a whole to assert that multitudes are irregular; but although there may be a difference of opinion as to the number of individuals that may be properly regarded as a multitude, the fact that the belief is entertained by a man of standing should lead to some action.

One of the most troublesome features of registration of physicians for the purpose of permitting the use of alcohol, is the provision of the law which allows emergency prescribing without the required form, providing that the word "emergency" is written on the prescription. This feature is certainly a temptation. Anyone disposed to be accommodating rather than scientific, might follow the easy path.

The Bar Association and the courts of this Commonwealth are actively at work to clear the legal profession of guilty practices. This has been brought about by members of the bar who have reported suspicious actions on the part of some of its members. Physicians should be as jealous of the reputation of the medical profession as lawyers of their profession. Any doctor who feels reasonably sure of unethical practice by another should place that information before the proper officers. It should not be said the one profession is more concerned about the reputation of its members than another. If medicine can be justly condemned, we should clean house. The coöperation of every reputable critic should be sought. Will Dr. Eliot set a good example and present the facts on which his statement is made?

DR. HARVEY CUSHING, PRESIDENT OF THE AMERICAN COLLEGE OF SURGEONS.

AT the recent meeting of the American College of Surgeons, Dr. Harvey Cushing was elected President. This confers another honor on Dr. Cushing and on Massachusetts, his adopted state. Dr. Cushing was born in Cleveland, Ohio, April 8, 1869. He received the degree of A.B. from Yale in 1891 and the degree of A.M. and M.D. from Harvard in 1895. He served as house pupil in the Massachusetts General Hospital. He studied abroad under Theodore Kocher and Hugo Kronecker of Berne and served on the staff of the Johns Hopkins Hospital for fifteen years, where he acquire his reputation as the foremost authority on surgery of the brain and nervous system. He is Professor of Surgery at the Harvard Medical School and Surgeon in Chief at the Peter Bent Brigham Hospital.

It is earnestly hoped that Dr. Cushing can give the necessary time to this office, but it means self-sacrifice, for if his activities permit acceptance, his ideals will lead to the correction of some defects in the customs and administration of the College.

The annual meeting of the College will be held in Boston next year.

TYPHOID FEVER.

HEALTH authorities are concerned with the higher death rate of typhoid fever which, although low the first six months of the year, is now equal to that of 1920 and is rising.

There are numerous epidemics throughout the country, especially in New Jersey, Illinois, Pennsylvania, Ohio, New York and many of the Southern States. This means that measures for control are not being carefully applied. The possible explanations are lack of supervision of milk and water supplies, less attention to carriers, possible lowering of efficacy of war-time inoculations and less publicity of the known facts relating to the disease.

Fortunately Massachusetts has not been abnormally afflicted, but there is need of eternal vigilance.

MEDICAL NOTES.

ELECTION OF DR. R. M. SMITH.—Dr. Richard M. Smith of Boston, has been elected Secretary of the American Child Hygiene Association for 1923.

DURING the week ending November 5, 1921, the number of deaths reported was 176 against 184 last year, with a rate of 12.12. There were 20 deaths under one year of age against 22 last year.

The number of principal reportable diseases were: Diphtheria, 70; scarlet fever, 39; measles, 48; whooping cough, 3; typhoid fever, 3; tuberculosis, 29.

Included in the above were the following cases of non-residents: Diphtheria, 7; scarlet fever, 4; typhoid fever, 1; tuberculosis, 4.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; tuberculosis, 17.

SPRINGFIELD ACADEMY OF MEDICINE. — The November meeting of the Springfield Academy of Medicine was held at 137½ State Street, Tuesday evening, November 8, 1921, at 8.30 o'clock.

Dr. David Riesman, Professor of Clinical Medicine at the University of Pennsylvania, read a paper entitled "Abdominal Manifestations in Diseases of the Chest."

Luncheon was served after the meeting.

ALLEN G. RICE, *Secretary.*

NOTICE. — *The Journal of Orthopædic Surgery*, the official organ of the American Orthopedic Association and the British Orthopædic Association, announces that in January it will change from a monthly to a quarterly publication. In issuing the Journal every three months, it is planned to provide the readers with fully as much, or even more, reading matter than under the present arrangement, and it is hoped that the Journal may be made more valuable and interesting. The Journal will continue to be published in Boston under the existing management.

THE provisions of a law requiring the reporting of births by parents and householders has evidently been disregarded by the people for many years because very few knew of its existence. The Secretary of State is now disseminating information relating to this law and is requiring compliance with it, and is sending out the following notice:

Parents, be sure to record the birth of your child with given name in full.

READ THE LAW!

"Parents within forty days after the birth of a child, and every householder, within forty days after a birth in his house, shall cause notice thereof to be given to the clerk of the town where such child is born. * * * * * * " Gen. Laws, Chap. 46, Sec. 6.

Some of the many reasons why births should be recorded:

To establish identity.

To prove nationality.

To prove legitimacy.

To show when the child has the right to enter school.

To show when the child has the right to seek employment under the child labor law.

To establish the right of inheritance to property.

To establish liability to military duty, as well as exemption therefrom.

To establish the right to vote.

To qualify to hold title to, and to buy or sell real estate.

To establish the right to hold public office.

To prove the age at which the marriage contract may be entered into.

To make possible statistical studies of health conditions.

Your coöperation to the end that all births may be properly recorded will be greatly appreciated.

Notice. — Return this Blank, properly filled out, immediately.

WORLD'S CONGRESS OF ANAESTHETISTS.—The National Anaesthesia Research Society has arranged to call a World's Convention of Anaesthetists at the next annual meeting in October, 1922.

TEACHING THE BLIND. — Education of the Blind is the subject of a course in the graduate school of education, Harvard University, conducted in coöperation with the Division of the Blind of the Massachusetts Department of Education and the Perkins Institution for the Blind.

GERMAN MORALS.—The German Monist Association has offered a prize of 10,000 marks for a textbook in nonsectarian moral instruction. With the present value of a mark, the offer is not likely to stimulate great mental effort.

Teaching of morals in Germany may be likened to locking the door after the horse has been stolen, but the book should meet a long-felt need.

HARVARD MEDICAL SOCIETY. — The Harvard Medical Society met in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke St. entrance), Tuesday evening, November 8, 1921, at 8.15 o'clock. Program:

Traditions of the Edinburgh School, Sir Harold Stiles, Professor of Clinical Surgery, Edinburgh.

WORCESTER DISTRICT MEDICAL SOCIETY.—Postponed meeting was held November 9th, at 8.15 P.M., in Knights of Pythias Hall, P. O. Block, Spencer, Mass. Program:

1. The Therapeutic Effect of the Roentgen Ray on Lymphoid Tissue, Dr. Philip H. Cook, Worcester.

2. The Value of Optical Examination in an Industrial Plant, Dr. Noel G. Monroe, Southbridge.

J. J. GOODWIN, *President.*
A. W. ATWOOD, *Secretary.*

Annual Meeting of the New York and New England Association Railway Surgeons.—On Saturday, October 29th, the thirty-first annual session of the New York and New England Association Railway Surgeons was held at the Hotel McAlpin, New York City. It was one of the most successful sessions ever held in the history of this very popular Association. The attendance was perhaps the largest — for the assembly room was crowded all day long with surgeons from all over the United States.

The symposium for the afternoon session was "Surgery of the Stomach and Intestines." On this attractive program were the names of surgeons standing at the very head of the medical profession of the entire world, *viz.*, Dr. Charles H. Mayo of Rochester, Minn.; Dr. John B. Deaver of Philadelphia, Pa.; Dr. Charles H. Peck, Dr. Lewis Gregory Cole, Dr. William Sharpe, Dr. William A. Downes, Dr. William B. Coley, of New York City; Dr. Donald Guthrie of Sayre, Pa., and Dr. J. M. Wainwright of Scranton, Pa.

These surgeons all have an international reputation in their various and special lines of work.

In closing the discussion of this symposium, Dr. John B. Deaver of Philadelphia, Pa., gave a moving picture demonstration of the various operations upon the stomach and intestines.

This discussion continued until dark—and when those in attendance departed, it was with a feeling that they had listened to, and participated in, one of the ablest and most interesting discussions on this subject ever held in America.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year: President, Dr. Donald Guthrie, Sayre, Pa.; First Vice-President, Dr. J. K. Stockwell, Oswego, N. Y.; Second Vice-President, Dr. Edgar VanderVeer, Albany, N. Y.; Treasurer, Dr. J. M. Hamilton, Rutland, Vt.; Recording Secretary, Dr. Horace H. LeSeur, Batavia, N. Y.; Corresponding Secretary, Dr. George Chaffee, Binghamton, N. Y. Fifty surgeons were elected to active membership in the Association.

DR. CHAFFEE MADE THE RECIPIENT OF A CASE FILLED WITH GOLD.

Early during the morning session, Dr. George Chaffee of 170 Court Street, Binghamton, N. Y., who is Founder, ex-President and Corresponding Secretary, and who has guided and directed the affairs of the Association since its organization—for thirty years—was called to the platform where, in an eloquent address, Dr. John W. LeSeur of Batavia, N. Y., an ex-President, in behalf of the Association and in recognition of his devotion and loyalty to the Association in his thirty years of able service, presented Dr. George Chaffee with a neat case containing $222 in gold.

Dr. Chaffee was so overcome by the kindly spirit of appreciation which prompted this generous gift that he was unable to respond in proper manner off hand, or to say any more than "You have given me the surprise of my life. My response will be written out and published in our Book of Transactions. In the meantime, I thank you all, very, very sincerely."

Institute of the Boston Tuberculosis Association.—In a number of ways the Institute for Physicians of the Boston Tuberculosis Association was eminently successful. It was given at the Massachusetts General Hospital on Wednesday and Thursday, October 26 and 27. There were two sessions of papers each day with an intervening luncheon, the whole with the compliments of the Association. Altogether eleven papers were read and a symposium by two speakers presented. The program has already been published in the Journal, and was carried out as planned. More than three hundred auditors attended. It was a contribution on the part of the Association towards the diffusion of knowledge with reference to tuberculosis, embracing both general and technical discussions.

In the groups of men assembled the Institute was particularly fortunate. Members of health departments, in half a dozen instances the health commissioner himself, represented the state, the city of Boston and other municipalities. There were registrants from the four state sanatoria and from city, county and private sanatoria and institutions, together with members of the staffs of a number of hospitals in and about Boston. Ten officers of the staff of the U. S. Naval Hospital at Chelsea were in attendance, and the U. S. Public Health Service was represented in a similar manner. A goodly number of medical students registered for the Institute, who showed a sporadic distribution from Maine to Texas, with one young man from South America. Particularly interesting were the physicians from suburban cities and towns and from portions of the city in which there are populations speaking languages other than English. A special effort was made to reach the physicians ministering to such groups, because it was felt that the Institute bore a message of unusual value for them. The newspapers printed in foreign tongues were helpful, and almost without exception called attention to the opportunity for acquiring the latest and most authoritative information.

There were five papers which were expressed in terms to be popularly appreciated: those of Dr. James A. Miller, Dr. Lawrason Brown, Dr. Eugene R. Kelley, Dr. W. C. Woodward and Dr. Vincent Y. Bowditch. The others were technical, some of them being profusely illustrated by means of sections or specimens, while the symposium had for its text a group of

x-ray pictures. This was an object lesson in diagnosis, Dr. Hawes producing for the inspection of Dr. Holmes, selections from his own plates; Dr. Holmes, to whom the plates were new, giving the indications that they afforded and Dr. Hawes then stating what the full diagnosis and treatment had revealed. The "duet" was of highest interest and was a revelation of the skill that can be acquired by a specialist.

The papers of the two visitors, Dr. Miller and Dr. Brown, were highly commended by all who heard them, the latter being characterized as "an epitome of all knowledge with reference to the diagnosis of the disease."

Dr. Miller, whose subject was, "Tuberculosis in the Community," emphasized a number of points. He spoke of the advances in knowledge and asked the general practitioner to take cognizance of these. He said that "many men now practising were educated before the advent of preventive medicine. There are many doctors today who are equipped with old-fashioned knowledge." He dwelt on the value and necessity of reporting of diseases, he referred to the necessity for a knowledge on the part of the physician of the home conditions of his patient, and noted that this being essential to health administration, the physicians must cooperate with the local and governmental health officers. He outlined the local governmental work as including the enforcing of sanitary regulations, the housing problem and the distribution of population. In these matters the individual physician is helpless. He referred to the physician as a factor in public opinion in his community. One of the matters discussed quite at length was the industrial field, in which he considers the opportunities to be quite equal to those of any other field. Discussing the work done in tuberculosis by social agencies, Dr. Miller called upon the physicians to rise to the occasion. "If medicine does not measure up to the needs," he said, "some other agency will do it. Now is our opportunity."

Dr. Brown declared that the diagnosis of tuberculosis rests mainly on five symptoms, any one of which may be a danger signal, but no one of which by itself is conclusive. These include the presence of the tubercle bacilli, x-ray indications, the existence of râles in certain definite localities and under definite conditions, pleurisy and hemoptysis. There are other symptoms of minor significance. The paper was largely a lucid evaluation of the relative value of data secured from the symptoms. The minimal requirements for a positive diagnosis were stated, and the necessity for early diagnosis. The latter was really the motive of the paper, since modern methods depend more and more on the early detection of the disease and require the physician to be acquainted with the early symptoms.

Dr. Kelley's paper was a statement of the various ways in which the Massachusetts Department of Public Health can aid practitioners. These include the use of sanatoria for early and moderately advanced cases, when there are beds, encouragement to physicians to get their patients into the State sanatoria in the earlier stages of the disease, and the placing of the specialized staffs of the sanatoria at the service of the practitioners through consultation clinics.

Dr. Woodward called attention to the necessity of better reporting of cases, to the need of specialists for diagnosis, and called for cooperation of the physician with the health department. Dr. Bowditch outlined the early history of sanatoria and noted the change in the attitude of both laity and profession with reference to the possibilities of cure. In this connection he dwelt on the importance of institutions for the treatment of delicate children with tuberculous tendencies. Vital factors of anti-tuberculosis work include such establishments and open-air schools, sanatoria, hospitals for advanced cases near their homes, dispensaries and efforts to improve the conditions of dwellings and workshops. Patient investigation in medical schools and in the community is important.

Miscellany.

HARVARD MEDICAL SCHOOL RESEARCH CLUB.

At a meeting of the Research Club of the Harvard Medical School, held on October 28, Dr. Lawrence J. Henderson talked on "Blood as a Physico-Chemical System."

He explained the interaction between the oxygen and carbonic acid in the blood by means of the theory of acid-base equilibrium. His theoretical considerations were stated in the simplest terms possible, but had to be closely followed in order to understand his reasoning.

The chemical reaction that takes place when oxygen unites with hemoglobin to form oxyhemoglobin is reasonably simple. But this reaction differs from a simple chemical reaction in several ways. First, the hemoglobin has a molecular weight of 16,000, so there must be colloidal complications. Secondly, one is dealing with a solution of electrolytes and so the reactions do not obey the simple law of mass action. Furthermore, the capacity of the blood to fix oxygen is limited by the hemoglobin. The capacity of the blood to fix carbonic acid is not sharply limited by the amount of basic radicals. The oxygen has no special function in the blood beyond being transported, whereas the carbonic acid is a normal constituent of the blood plasma. Oxygen is nearly insoluble and so the concentration is low. Car-

bonic acid is moderately soluble and the concentration is high.

The experiment of plotting the curves of saturation of blood under different carbon dioxide tensions was quoted to show that increasing the carbon dioxide tension drives the oxygen out of the blood. This being so, then the capacity of the blood for taking the carbonic acid ought to be influenced by the oxygen tension. And this is true, for there is a reciprocal reaction between them.

That oxygen and carbonic acid are not related by reactions in the blood, yet must be some relation, can be explained by the fact that there are three steps in the process. So that one can explain the facts in terms of hydrogen ion concentration. For as the oxygen combines with the hemoglobin to form oxyhemoglobin, which is more acid than hemoglobin, the base combines with the oxyhemoglobin, thus setting free carbonic acid. As the carbonic acid passes into the plasma the chlorides go into the corpuscles. Since carbonic acid can move these chlorides this way the oxygen should be able to do so also. This then will give six variables, oxygen, free and combined; carbonic acid, free and combined; the hydrogen ion concentration and the concentration of the chlorides in the serum. By taking sets of three variables, one can get four equations. These can be plotted so as to express what is known in the blood by a diagram in two dimensions.

Dr. Henderson thus brought out that the importance of the hemoglobin is not merely to transport oxygen, but that it is only slightly less important in the loading and unloading of carbonic acid. He stated that 90% of the carbonic acid produced depends on the hemoglobin for its actual transport. Otherwise there would have to be a larger variation in the hydrogen ion concentration. So the hydrogen ion concentration is much more carefully guarded in a more complicated manner than formerly believed.

A full discussion of this reaction by Dr. Henderson will be found in the *Journal of Biological Chemistry*, Vol. 41, pp. 401-429 (1920).

SEMI-ANNUAL MEETING OF THE MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY.

THE eighty-first semi-annual meeting of the Massachusetts Homeopathic Medical Society was held at the Massachusetts Homeopathic Hospital, Wednesday, November 2, 1921.

The morning session was devoted to short, pithy talks of fifteen minutes, as follows: Cancer of the Uterus, Dr. C. M. Green; Cancer of the Rectum, Dr. W. K. S. Thomas; Cancer of the Lip, Dr. H. J. Lee; Cancer of the Breast, Dr. C. Crane; Cancer of the Bladder, Dr. R. C. Wiggin; Cancer of the Stomach, Dr. T. E. Chandler; Radium Treatment of Cancer, Dr. W. T. Lee; High Voltage X-ray Treatment of Cancer, Dr. H. F. Friedman.

Luncheon was served at noon in the recreation room at Vose Hall. In the afternoon, the business session was held. The reports of the various committees were very concise and to the point.

Dr. E. P. Ruggles, in his report of the Committee on the Maternity Bill, showed that much constructive work had been done.

The Necrologist, Dr. Frank A. Gardner, reported the deaths of Dr. Charles B. Sanders, April 30, 1921, and Dr. Henry Rich Higgins, August 23, 1921.

Three new members were voted into the Society.

Dr. T. DeWitt Wilcox offered the following resolution:

Whereas: The medical profession of today regards beer as a substance of doubtful medicinal value; and

Whereas: The prescribing of beer under the ruling of Secretary Mellen, for physical ailments, tends to place the medical profession under the suspicion of using its powers and privileges for commercial purposes; therefore,

Be It Resolved, That we, the members of the Massachusetts Homeopathic Medical Society in session assembled, look with disfavor upon the prescribing of beer for any and all physical ailments.

Dr. Cushman, a member of the Massachusetts Homeopathic Medical Society, a member of the Maine Homeopathic Medical Society, and a graduate of Boston University School of Medicine, who has recently received the distinction of being the first woman to be appointed to membership on a State Medical Registration Board (Maine), was present.

The oration of the day was given by Dr. Nathaniel R. Perkins, Assistant Secretary of the Massachusetts Board of Registration in Medicine, the subject of the oration being, Some Sidelights on the Work of the Massachusetts Medical Registration Board.

He gave a résumé of the personnel of the Board, from its organization to the present time, and also a brief synopsis of the changes in the medical practice Act, and the changes in the methods adopted by the Board and its work, in the order in which they had occurred. He spoke somewhat at length regarding the number and character of hearings given by the Board in the past three years, outlining the character and disposition of each case.

He spoke briefly, but emphatically, giving his views regarding the necessity of some form of registration of midwives, and the practice of obstetrics by medical students, as required in their course of study. He advocated that a bill be drawn which would provide for the

registration of students in medical schools, for externe work only. He advocated that the work of registering midwives should be on similar lines with the registration of chiropodists, *i.e.*, a department within the Medical Registration Board.

Dr. Perkins laid stress on the fact that the success of the Massachusetts Registration Board, was due largely to the efforts of its former Secretary, the late Dr. Edwin B. Harvey, and to its present Secretary, Dr. Walter P. Bowers.

At the close of the oration, it was unanimously voted that the able paper presented by Dr. Perkins, be printed for circulation.

A student demonstration of a Clinical Clerkship and Ward Walk, as a prerequisite to graduation from Boston University School of Medicine, was given under the charge of Dr. J. E. Briggs. A clinical Clerkship requires the careful recording by the assigned student of the history, physical and laboratory examinations, operative procedures, treatment, prognosis, etc., of a house or out-patient.

Dr. S. C. Fuller also gave a brief clinical presentation of a case.

BEVERLY HOSPITAL.—A Cancer Clinic was held at the Beverly Hospital, Beverly, Mass., on Saturday morning, November 5. Dr. J. Harper Blaisdell, Dr. Ralph Leonard, Dr. Peer P. Johnson and Dr. Hobart Warren were the speakers.

Dr. J. Harper Blaisdell of Boston, spoke of radium treatment as a cure for cancer. He said that 100,000 people die yearly from cancer. That number is about the population of Lynn. He stated that the statistics of the Massachusetts General Hospital show that from the onset of the symptom to the time of operation nine months have elapsed. This time should be shortened, and this can be done by educating the physician and with the coöperation of the patient. Cancer of the skin can be cured by radium treatment. Cancer of the skin and cancer of the cervix offer the best solution. It is definitely decided that 45% of these cases who die yearly of cancer, could be saved by early recognition of the disease, and proper treatment. Several cases of nevi were shown, illustrating the treatment with radium.

Dr. Ralph Leonard of Boston, spoke of x-ray treatment for cancer. X-ray owes its success to special action on tissues, particularly cancerous cells. The action is simply to burn the cancerous tissues without affecting the other tissues. This method is successful in skin cancer, but the present offers radium. Postoperatively it allays pain and offers comfort. At best, the treatment is simply palliative and our hope lies through radium. Dr. Leonard particularly urged the doctors to resort to surgery for cancer of the breast and deeper structures and not use x-ray.

Dr. Peer P. Johnson of Beverly, spoke on Surgical Treatment of Cancer. He stated that the length of time between the appearance of symptoms of cancer and time of attention was usually nine months, which was a waste of time. In the future, radium and the surgeons will fight it out as to who will be successful. The danger lies in chronic irritation. Cases were shown where badly fitted false teeth and chronic irritation had produced cancer of the mouth which was treated with radium and cured.

Dr. Hobart Warren of Beverly Farms, spoke in regard to the methods of teaching the people the facts of chronic irritation. He also reported a case of bactericidal action following pneumonia, showing the effect of chronic infection, and suggesting that this form of irritation might be a provoking cause of cancer.

Dr. Bogan of the Hospital showed x-rays and pathological specimens. R. E. STONE, M.D., Chairman, Cancer Week Commission for Beverly.

Obituary.

BINGHAM HIRAM STONE, M.D.

NEWS has come of the death of Dr. Bingham Hiram Stone at Burlington, Vt., on October 28, 1921, following an attack of cerebral hemorrhage. He was known throughout New England as pathologist for the State of Vermont and head of the State Laboratory of Hygiene.

Dr. Stone was a native of Jericho, born February 21, 1874, and a graduate of Vermont University in 1899, where he afterward became professor of bacteriology and pathology. Later he was connected with leading hospitals in New York, and was recalled seventeen years ago to become head of the State Laboratory in Burlington.

In connection with his state duties, Dr. Stone was medical examiner in all cases requiring pathological examinations, and in this capacity travelled to all sections of the state to investigate the medical aspects of every case in which there was a suspicion of foul play. His reports were invariably accepted without question, by all parties, and this was particularly significant in the trial of murder cases in which defendants declined to question the state pathologist's findings and expert opinions. It was said of him that he was the highest type of public officer and that his testimony was dependable to the last degree.

In recent Vermont murder mysteries and trials, Dr. Stone was the only expert medical witness called by either side. His commanding figure, terse manner of testifying without technical terms, and direct address to juries, made him a well-known figure.

The annual meeting of the Boston Tuberculosis Association was held at 3 Joy Street, Tuesday, November 15, 1921, at 3.30 P.M.

Dr. Jabez H. Elliott of Toronto, Can., and Dr. Henry D. Chadwick, Superintendent of the Westfield State Sanatorium, Westfield, Mass., gave illustrated talks on the subject of Preventoria for Children.

The meeting of the New England Ophthalmological Society was held at the Massachusetts Charitable Eye and Ear Infirmary, 233 Charles Street, Boston, on Tuesday evening, November 15, 1921, at 8 o'clock.

PROGRAM.

Hospital Cases

1. Sympathetic Paralysis.
2. Exhibition of Barraquer Suction Apparatus for Intra-capsular Extraction.
   Dr. George S. Derby, Boston.
3. Case of Infection after Cataract Extraction with Recovery of Eye. Dr. H. B. Stevens, Boston.
4. Case of Persistent Post-operative Separation of the Choroid, Successfully Treated by Scleral Puncture. Dr. F. H. Verhoeff, Boston.

Dr. Albert C. Snell of Rochester, N. Y., presented the substance of the report of the American Medical Association Committee on Compensation for Ocular Injuries. An open discussion followed.

NOTE: It was suggested that the Society use some of its funds to purchase a projector in conjunction with the Infirmary and the Harvard Medical School. The probable cost to the Society would be about $40.00. The projector would be kept at the Infirmary and used by the three owners at will. The Executive Committee wishes the members of the Society to be prepared to vote on this matter at the next meeting.

W. HOLBROOK LOWELL, *Secretary*

NOTICES.

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—The meeting of the Research Club to be held at the Harvard Medical School Amphitheatre in Building A, at twelve-thirty o'clock, on Friday, November 18, will be addressed by Dr. Cecil Kent Drinker on "Certain Aspects of Failure of the Right Ventricle."

CLINICAL MEETINGS OF STAFF OF MASSACHUSETTS GENERAL HOSPITAL.—The next clinical meeting of the Massachusetts General Hospital staff will be held in the Lower Out-patient Amphitheatre on Monday, December 12, at 8.15 P.M.

1. Presentation of a Case by Dr. Joseph Stokes, Jr.
2. Original Paper on Schistosomiasis.
   Dr. Richard P. Strong.
   Dr. George C. Shattuck.
   Dr. B. Tanabe.

Doctors, nurses and medical students invited.

THE BOSTON ASSOCIATION OF CARDIAC CLINICS will hold a meeting at the Massachusetts General Hospital Lower Out-patient Amphitheatre on Thursday, November 17, at 8.15 P.M.

1. The Diagonsis of Heart Disease.
   Dr. Paul D. White.
2. Problems for Cardiovascular Research.
   Dr. Samuel A. Levine.

All physicians, social workers and others interested in the problem of heart disease are invited.

Very truly yours,

F. A. WASHBURN, *Resident Physician.*

BOSTON MEDICAL HISTORY CLUB.—8 The Fenway, Boston, Mass. Meeting, Friday, November 18, 1921, 8.15 P.M.

PROGRAM.

Brief communications by Drs. Farlow, Cushing, Storer, Thorndike and Coues.

Presentation of books and other material.

Discussion.

EDW. C. STREETER, *Secretary.*

HARVARD GRADUATE SCHOOL OF MEDICINE, WORCESTER EXTENSION COURSE.—The complete program for this season's extension course is as follows:

Wednesday, November 16—The Convulsive Disorders of Childhood. Dr. J. L. Morse.

Wednesday, November 23.—A Discussion of Some Recent Tendencies in Infant Feeding. Dr. J. L. Morse.

Wednesday, November 30—Nutritional Disorders in Infancy and Childhood. Dr. J. L. Morse.

Wednesday, December 7—Medical Biliary Drainage for Diagnosis and Treatment of Diseases of the Bile Passages and Liver. Dr. Franklin White.

Wednesday, December 14—The Acute Respiratory Diseases in Childhood. Dr. J. L. Morse.

Wednesday, January 4, and Wednesday, January 11—Recent Advances in the Study and Treatment of Heart Disease. Dr. Paul S. White.

Enrollment is by payment of the usual fee of ten dollars. Lectures will be held in the chapel, King Street entrance, Worcester City Hospital, and will begin promptly at 8.15. Cards for applications may be secured by applying to Ernest L. Hunt, M.D., Worcester City Hospital, or William F. Lynch, M.D., Treasurer, 390 Main Street, Worcester. A supplementary course on obstetrics will be arranged if enrollment permits.

Very truly,

ERNEST L. HUNT, *Secretary.*

SOCIETY NOTICE.

MIDDLESEX SOUTH, NORFOLK AND NORFOLK SOUTH DISTRICT MEDICAL SOCIETIES will hold a combined meeting at Tufts College Medical School, Tuesday evening, November 29, at 8 P. M. Speakers will be Dr. John W. Bartol, President of the Massachusetts Medical Society, Dr. Charles E. Mongan and Dr. Arthur N. Broughton. Collation after the meeting.

IMPORTANT NOTICE.

Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

Correspondence.

MATERNAL AND INFANT WELFARE.

Everett, Mass., Nov. 3, 1921.

Mr. Editor:—

The report of the Committee on Maternal and Infant Welfare published in your issue of October 27 prompts the writer to offer some general observations. After several years of special commission investigations, and the discussion of health insurance and maternity benefits in both the medical and lay press, it appears quite evident that none of the advocates of special legislation have proved their case to the satisfaction of all the interested parties and that what is most needed now is more data, as well as more accurate data, before a correct diagnosis can be made.

It also appears that the general practitioner who is in closest touch with the patient and her family must be relied upon to supply a large part of the needed facts and that this cannot be done between two successive new moons. While opinions may differ as to the value of present statistical data and where the blame should rest for what seems a serious increase in the maternal death rate in Massachusetts within the past twenty years, yet no medical man of experience can well deny that the present maternal death rate is higher than it should be and that co-operation on the part of the general public, the medical profession and the patient and her family could undoubtedly save many lives.

The plan of the committee to send a letter asking for detailed information to all the physicians of the state appears to promise better results eventually than a bill introduced at present on Beacon Hill.

The writer would like to suggest that greater emphasis be placed on the data that would indicate the fitness of the patient by inheritance, physical development, education, occupation and environment for motherhood. The country was much surprised to find how large a proportion of its young men of draft age were unfitted for military service in 1917. If the women of childbearing age were examined for their fitness for motherhood, is it likely the showing would be any better?

The report of the Commission on Maternity Benefits last year reported 114 preventable deaths out of a total of 299 deaths investigated. The data gave the number of pregnancies in 99 cases. Of this number 46—nearly one-half—died in connection with their first pregnancy, and 18 additional in connection with their second pregnancy. Thus 64, nearly two-thirds, died as the result of either their first or second pregnancy. It seems fair to raise the question in how large a degree the fitness of the woman for motherhood determined the result in these fatal cases. However important and essential prenatal care may be, it cannot take the place of physical, mental and moral fitness of the woman for motherhood.

The writer would like to suggest the possibility of finding a clew to some "unfavorable factor, apparently unknown" by an investigation of our present educational, social and industrial systems on the women of childbearing age today. Is motherhood less important and necessary for the welfare of the race than military service, holding political office, business efficiency or professional success,

It appears to the writer that the committee of the Council has done a sensible and logical thing in calling on the general practitioners of the state to help supply the needed date on which to base an intelligent campaign for the betterment of the public health and that it is now up to the general practitioner to justify his fitness for his job.

GEORGE E. WHITEHILL, M.D.

EARLY OPERATION FOR CANCER.

Boston, Mass., November 5, 1921.

Mr. Editor:—

I exceedingly regretted that important engagements prevented my attendance upon the meetings devoted to the discussion of cancer and its control. I helped to inaugurate the movement at its inception and my old friend, Dr. Carstens of Detroit, was one of its most earnest advocates. Only recently his death occurred, caused by an inoperable cancer of the mediastinum.

He had long been a disciple, earnestly impressing upon the profession the duty of early operation for cancer and only recently urged that the medical profession set aside one day a year in teaching the public the danger of delay in operations. When a student in Edinburgh in 1870, Dr. Bennet, one of the first pathologists in Europe, declared to me his conviction that cancer was first local and was probably disseminated through the lymphatics and that, as a consequence, it was of the greatest importance to operate early and with great care to remove all glandular enlargements. The general teaching up to this period had been that cancer was a constitutional disease and that operation, at the best, was only a palliative measure of relief. Convinced of the correctness of Dr. Bennet's opinion, I have since surgically fought cancer as the fire department does fire, with the conviction of having saved many lives.

In one of my earlier studies, I made cultures from material carefully taken from carcinomatous growths. It was not difficult to differentiate a coccus, which in repeated cultures bred true, but they were not reproduced by inoculation in animals.

At this time I had been made aware of the sad experience of one of the younger members of the profession. The patient had developed a malignant growth of the face requiring frequent dressings. On one of these occasions, incontinently he rubbed his own face and inoculated a small abrasion. This was thought little of until later it spread rapidly and cost his life prior to that of his patient. In one of my lectures I narrated my experiences, regretting that the state should execute its murderers rather than making them subjects of scientific investigation. The Society for the Prevention of Cruelty to Animals investigated me, expressing their indignation that Dr. Marcy, who had for a long time kept in his garden a menagerie of animals, the subjects of torture, should at last seek to prey on his own species.

As a fruitage of the meetings, I operated yesterday upon a patient for cancer, who has some misgivings of her condition and, after attending the conference, consulted me immediately.

Yours sincerely,

HENRY O. MARCY.

WE are a life-wasting people. Approximately, more than a million and a half persons die in the United States each year, and over six hundred thousand could have been saved by known methods. Professor Keith of England declared in 1918 that "if the health of the people had been properly looked after, we should have been able to put into the fighting ranks at least a million more men. The 46 per cent. defective among our men of draft age indicates our own inefficiency. The great problem is the adoption of the most comprehensive preventive measures which are fairly well understood but not made effective.